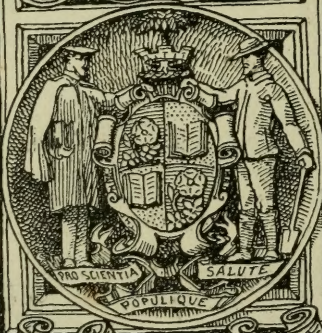






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ORCHIDS OF SOUTH AFRICA.

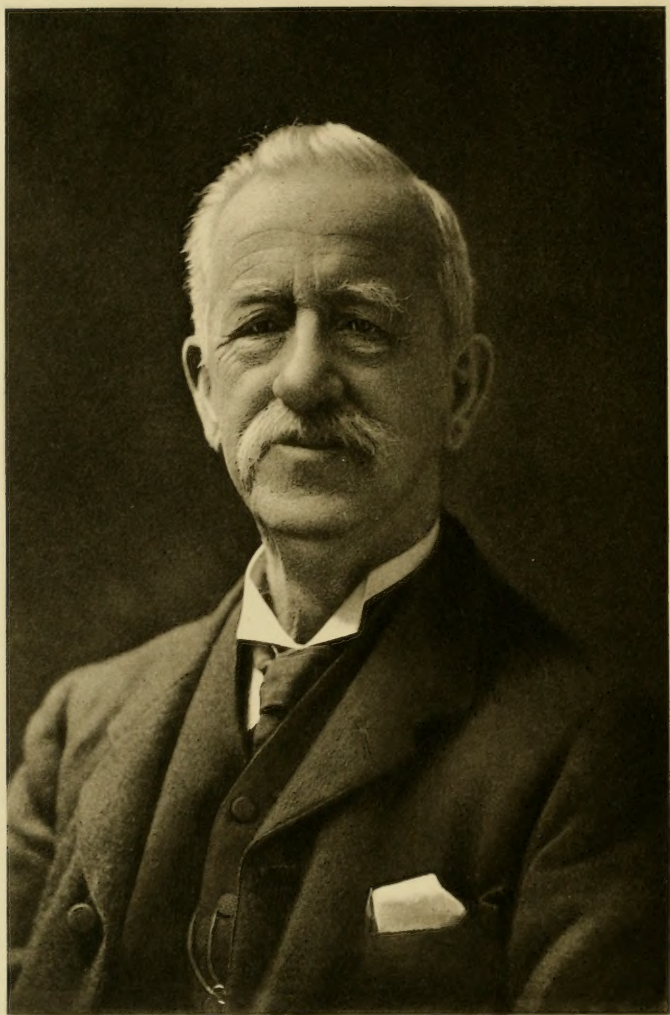
VOLUME II.

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*The last pages of this book were finally corrected by  
the Author on the eve of his death.*





Yours sincerely  
Henry Jones



ICONES  
ORCHIDEARUM AUSTRAL-AFRICANARUM  
EXTRA-TROPICARUM ;  
OR,  
FIGURES, WITH DESCRIPTIONS  
OF  
EXTRA-TROPICAL  
SOUTH AFRICAN ORCHIDS

BY  
HARRY BOLUS, F.L.S., Hon. D.Sc. (Cape)

VOLUME II.

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## PREFACE



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Fifteen years have elapsed since the publication, in 1896, of the first volume of this work ; and, although this delay has arisen from causes entirely beyond my own control, viz., from advancing years and ill-health, yet I feel that some explanation is due to the purchasers of the previous volume who may wish to have what they would call and consider a "complete" work.

This wish is very natural. But in the present instance I fear that from the very nature of the case it can hardly be fulfilled by myself. In a country like the South African Union, so imperfectly explored and so difficult of exploration by botanical collectors, some years must elapse before the same proportion of the existing vegetation can be known, as is the case in older and more populous countries, such as Great Britain. Still the work goes on though it continues slowly, and many new species have been added to the list of known South African Orchids during the last twenty years.

As I have endeavoured to draw the Orchids here figured from living plants only, and have succeeded in a large proportion of cases in doing so, yet this naturally presents many difficulties. At seventy-seven years of age one cannot be constantly travelling, and one is therefore dependent to a great extent on the good-will and kind assistance of friends and others interested in the subject, often living at a distance or travelling in other parts of the Colony. Amongst these, and in addition to those mentioned in the preface to the first volume, must now be named, first and foremost, with my expression of the warmest gratitude, Miss ALICE PEGLER, of Kentani, Tembuland, who, in spite of delicate health, has been indefatigable in exploring the Flora of her neighbourhood, of which she has sent a large collection, amongst which are numerous Orchids, some of which will be found figured in this volume.

Also, I am greatly indebted to Miss C. B. NEWDIGATE, of Forest Hall, near Plettenberg Bay and Knysna, who has most



kindly sent me excellent living specimens of several rare species of Orchids, such as *Disa excelsa*, Swartz, long lost to science, first collected by Thunberg about 1773, and scarcely known since ; also of *Disa Forficaria mihi* (see Vol. I. of this work, Tab. 87), first found by Drége in Du Toit's Kloof, and only once since, by Zeyher, according to Sonder's determination. It was first published by Lindley, who regarded it as a distinct genus, as *Forficaria graminifolia*, Gen. & Sp. Orch. 1838), 362.

To Mr. N. S. PILLANS, of Rosebank, near Cape Town, a very successful cultivator, especially of succulent plants, I am indebted for frequent assistance in procuring for me living specimens of Orchids for the purpose of figuring. His name is commemorated under Tab. 27.

Last, but not the least, I must express my gratitude to Miss H. M. L. KENSIT, B.A., for several years my devoted and very capable helper in botanical and all other work, and a frequent companion in botanical excursions. Her re-discovery, during a violent rain-storm, of *Disa Telipogonis* Reichenbach f., on the summit of Table Mountain, was a great delight to us, and formed quite a red-letter day in our experience. This small Orchid had been practically lost for seventy years, and I hope that its modest size and the quiet colour of its flowers may now save it from the extinction by ruthless flower-gatherers which has overtaken so many other flowers.

I fear I may seem to have been too prolix in the foregoing remarks. I would plead in excuse that the feelings of those who are colonists and explorers of the natural history of a new country are not strictly limited to scientific delights, but are closely united with a certain pride and interest in the discovery of the numerous new forms of nature in the country of their loving adoption.

H. B.

KENILWORTH,

Near CAPE TOWN.

April, 1911.

## TAB. 1.

Tribe VANDEÆ.

Sub-tribe SARCANTHÆÆ.

Genus LISTROSTACHYS.

**Listrostachys arcuata**, *Reichb. f. in Walp. Ann.*, vol. vi., p. 907 (1864).—Herba epiphytica robusta glabra, radicibus ad 0.6 cm. diam.; caulis adscendens foliosus ad 30 cm. longus, 1 cm. diam.; folia disticha lineari-oblonga apice obliqua obtusissima biloba, ad 14 cm. longa, 1.5-2.5 cm. lata; racemi 5-9 flori, 5-10 cm. longi, bracteis subrotundo-ovatis concavis membranaceis brunneis conspicuis, 1-1.2 cm. longis; sepala lanceolata longe acuminata patent-recurvata, 2-2.5 cm. longa; petala sepalis simillima sed breviora, 1.5-2 cm. longa; labelli limbus petalis conformis, 1.8-2.3 cm. longus, calcare arcuato-infundibuliformi apice uncinato-revoluto, limbo paullo longiore; columna nana, 0.2 cm. longa; operculum cucullatum rostratum; rostellum subpanduriforme apice attenuatum incurvatum; pollinia 2, subsphærica; stipites 2, oblique lineari-oblancoolati cartilaginei, glandulæ communi cartilagineæ adnati; capsula cylindrica 6 angulata, angulis alatis, 3.5 cm. longa, 1.3 cm. diam., pedicellis 2-2.5 cm. longis.—(*Ex exempl. plur. viv. exsiccatisque.*)—*Angraecum arcuatum*, *Lindley, in Hook. Comp. Bot. Mag.*, vol. ii., p. 204 (1836).

**Hab: South-eastern Region; CAPE COLONY:** Uitenhage: hills at Coega River, fl. Dec., *Zeyher*, 3890!; near Port Elizabeth, *Mrs. Holland*; **TRANS-VAAL:** Golden Valley,! Sheba Hill, near Barberton, alt. 1050 meters, fl. March, *E. E. Galpin*, 850!; *IV. Culver*, 73!; **Natal:** *Mrs. K. Saunders*!

**Plate 1.** Fig. 1, flower, side view; 2, ditto, the sepals and petals removed; 3, column, side view; 4, ditto, front view shewing the pollinarium in situ; 5, pollinarium, spread out; 6, ditto, shewing the pollinia and stipites revolute after withdrawal of the gland.

An epiphytic robust glabrous herb, with the roots attaining 0.6 cm. in diam.; stem ascending leafy up to 30 cm. long, 1 cm. diam.; leaves distichous linear-oblong oblique at the apex very obtuse bilobed, up to 14 cm. long, 1.5-2.5 cm. broad; racemes

5-9 flowered, 5-10 cm. long, with somewhat rotund-ovate concave membranous brown conspicuous bracts, 1-1.2 cm. long; sepals lanceolate long acuminate spreading-recurved, 2-2.5 cm. long; petals very like the sepals but shorter 1.5-2 cm. long; limb of the labellum like the petals, 1.8-2.3 cm. long, the spur arcuate-infundibuliform uncinately-revolute at the apex, a little longer than the limb; column short, 0.2 cm. long; operculum cucullate beaked; rostellum somewhat panduriform attenuate and incurved at the apex; pollinia 2, somewhat spherical; caudicles 2, obliquely linear-oblong cartilaginous adnate to a common cartilaginous gland; capsule cylindrical 6 angled, angles winged 3.5 cm. long, 1.3 c.m. diam., with pedicels 2-2.5 cm long.

Described from several living and dried specimens.



## TAB. 2.

Tribe VANDEÆ.

Sub-tribe SARCANTHÆÆ.

Genus ANGRÆCUM.

**Angræcum Saundersiæ**, *Bolus, in Hook. Icon. Pl., tab.* 1728 (1887).—Herba epiphytica glabra; caulis brevis simplex herbaceus; folia disticha ligulata, basi angustata, apice oblique biloba, coriacea obscure reticulata, 8-16 cm. longa; racemi solitarii penduli vel adscendentes foliis longiores, pauciflori (5-7 flori), interstitiis circa 1·5 cm. longis; flores albi; sepala et petala lateralialia lanceolato-oblonga subconformia, sepalo postico declinato, petalis demum reflexis, 1·2 cm. longis; labellum oblongum obtusissimum parum majus, patens, basi in calcar filiforme pendulum costatum incurvum, 6-7 cm. longum, productum; columna sub-tetragona, apice triloba declinata, 0·4-0·5 cm. longa; rostellum porrectum diaphanum, ungue lineari, lamina ovata, gracile curvatum; operculum ecristatum, antice in rostrum breve triangulare productum; glandula stipesque rostello exacte conformes eoque arcte adpressi; ovarium filiforme gracile, cum pedicello 1·5-2·2 cm. longum. (*Ex exemplo unico vivo pluribusque exsiccatis*).

*Hab*: **South-eastern Region**; CAPE COLONY: near Komgha, in woods, alt. 540 met., fl. March, *H. G. Flanagan*, 825!; near Kentani, alt. 450 met., fl. Feb., *Alice Pegler*, 471!; Natal: *Mrs. K. Saunders*!; Palmiet and Umbilo Rivers, March, 1865, *J. Sanderson*, 892!

**Plate 2.** Fig. 1, odd sepal; 2, side sepal; 3, one of the petals; 4, lip; 5, 6, column, side view; 7, ditto, front view; 8, pollinarium; 9, anther-case—all variously magnified.

A glabrous epiphytic herb; stem short unbranched herbaceous; leaves distichous ligulate, narrowed at the base, obliquely bilobed at the apex, coriaceous obscurely netted-veined, 8-16 cm. long; racemes solitary pendulous or ascending longer than the leaves, 5-7-flowered, flowers about 1·5 cm. apart, white; sepals and lateral petals lanceolate-oblong somewhat similar in form and texture, odd sepal declinate, petals finally reflexed, 1·2 cm. long; labellum oblong very obtuse, a little larger, spreading, produced at the base into a filiform pendulous costate incurved spur, 6-7 cm.

long; column somewhat tetragonous, 3lobed at the apex, declinate, 0.4-0.5 cm. long; rostellum directed forward diaphanous, claw linear, limb ovate, slightly curved; operculum uncrested, produced in front into a short triangular beak; gland and caudicle of the same shape as, and closely appressed to, the rostellum; ovary filiform slender, with the pedicel 1.5-2.2 cm. long.

Described from one living and several dried specimens. Very closely allied to *A. Mystacidii* Reichb. f. from which it differs in having a very obtuse lip and the spur not at all thickened in the lower part.

### TAB. 3.

Tribe VANDEÆ.

Sub-tribe SARCANTHÆÆ.

Genus ANGRÆCUM.

**Angræcum bicaudatum**, *Lindley in Hook, Comp. Bot. Mag.*, vol. ii., p. 205 (1836).—Herba epiphytica glabra caulescens, caule erecto simplice folioso, 8-22 cm. alto, 0·8 cm. diam. ; folia disticha lineari-oblonga, apice oblique biloba, 6-14 cm. longa, 1-1·5 cm. lata ; racemi multiflori, floribus brevissime pedicellatis, foliis breviores vel rarius longiores ; bracteæ cucullatæ obtusissimæ membranaceæ minutæ ; sepala ovata acuta vel obtusiuscula, 0·4 cm. longa ; petala lineari-lanceolata acuta vel acuminata, sepalis æqualia ; labellum 3partitum, lobis lateralibus patentibus linearibus, apice multifidis vel bifidis, laciniis multifidis, lobo intermedio subovato æqualibus vel longioribus, calcare cylindraceo leviter incurvato, ad 1·1 cm. longo ; columna brevissima ; rostellum declinatum apice incurvatum ; glandula unica sphæroidea, stipite basi rhomboideo-cuneato, polliniis approximatis ovatis. (*Ex exempll. plur. viv. exsiccatisque.*)

**Hab : South-western Region ;** CAPE COLONY : Knysna, fl., Jan., *R. Marloth*, (No. 6209 in my herb.) ; **South-eastern Region ;** near the Zwartkops River, *Drège* ; Coega, fl. Dec., *Zeyher*, 3888 ! ; Amos Kloof, near Grahamstown, alt. 600 meters, fl. Nov.-Dec., *E. E. Galpin*, 297 ! ; woods near Komgha, alt. 600 meters, fl. Dec., *H. G. Flanagan*, 636 ! ; Zululand : Etshowe, *Mrs. K. Saunders* !

**Plate 3.** Fig. 1, flower, front view ; 2, ditto, side view ; 3, odd sepal ; 4, side sepals ; 5, petals ; 6, column and lip, side view ; 7, ditto, front view ; 8, column ; 9, pollinarium.

An epiphytic glabrous caulescent herb, the stem erect unbranched leafy, 8-22 cm. high, 0·8 cm. diam. ; leaves distichous linear-oblong, obliquely bilobed at the apex, 6-14 cm. long, 1-1·5 cm. wide ; racemes many flowered, flowers very shortly pedicellate, shorter, or more rarely longer, than the leaves ; bracts cucullate very obtuse membranous minute ; sepals ovate acute or rather obtuse, 0·4 cm. long ; petals linear-lanceolate acute or acuminate,

equalling the sepals, lip 3partite, the lateral lobes spreading linear, multifid at the apex or bifid, with the segments multifid, equal to, or longer than, the somewhat ovate intermediate lobe, the spur cylindrical slightly incurved, up to 1.1 cm. long; column very short; rostellum declinate incurved at the apex; gland solitary sphaeroid; caudicle rhomboid-cuneate at base; pollinia approximate ovate.

Described from several living and dried specimens.

## TAB. 4.

Tribe VANDEÆ.

Sub-tribe SARCANTHÆÆ.

Genus ANGRÆCUM.

**Angræcum conchiferum**, *Lindley in Hook, Comp. Bot. Mag.*, vol. ii., p. 205 (1836).—Herba epiphytica caulescens, caule adscendente, 10-20 cm. longo; folia disticha linearia inæqualiter biloba, vaginis verrucosis, 3-5 cm. longa, 0·3-0·6 cm. lata; pedunculi axillares filiformes 1- vel rarius 2flori; bracteæ late ovatæ acutæ, 0·4 cm. longæ; sepala lineari-lanceolata acuminata vel setaceo-acuminata, 2·5-3·5 cm. longa; petala sepalis simillima sed paullo breviora; labellum semi-infundibulare, conchæ simulans, apice setaceo-cuspidatum, 1-1·3 cm. diametro, calcare late patente filiformi, 4-5 cm. longo; columna subquadrata; pollinia 2; stipes glandulaque non visi. (*Ex. exempl. unico vivo pluribusque exsiccatis.*)

**Hab :** **South-western Region ;** CAPE COLONY : near Knysna, fl. Oct., *J. F. Beck!*; **South-eastern Region ;** Perie Forest, near King William's Town, alt. 600-900 meters, fl. Nov.-Jan., *H. G. Flanagan*, 2233!; *T. R. Sim*, 261!; 19!; Natal : without station, flowered in Botanic Gardens, Cape Town, Oct., 1884.

**Plate 4.** Fig. 1, flower, front view; 2, ditto, back view; 3, column; 4, anther-case,—all variously magnified.

A glabrous epiphytic caulescent herb, stem ascending 10-20 cm. long; leaves distichous linear unequally bilobed, sheaths verrucose, 3-5 cm. long, 0·3-0·6 cm. wide; peduncles axillary filiform 1 or more rarely 2flowered; bracts broadly ovate acute, 0·4 cm. long; sepals linear lanceolate acuminate or setaceous-acuminate, 2·5-3·5 cm. long; petals very like the sepals but a little shorter; lip semi-infundibuliform, resembling a shell, setaceous-cuspidate at the apex, 1-1·3 cm. diam., spur widely spreading, filiform, 4-5 cm. long; column rather square; pollinia 2; caudicle and gland not seen.

Described from one living and several dried specimens. It is one of the most beautiful and delicate of the Angræcums. I have not been able to discover the caudicle and gland in any of the specimens which I have examined.





## TAB. 5.

Tribe VANDEÆ.

Sub-tribe SARCANTHEÆ.

Genus MYSTACIDIUM.

**Mystacidium Millari**, *Bolus, in Trans. South African Philosoph. Soc.*, vol. xvi., pt. 2, p. 147.—Epiphyta caulescens glabra; radices ærales 0·23 cm. crassæ; caulis validus, 0·4-0·5 cm. crassus; folia 2-3, pleraque apice caulis conferta, erecto-patentia ligulata subundulata inæqualiter biloba, lobis angustatis subobtusis, medio nervo depresso percursa, coriacea, 8·5 cm. longa, 1·4-1·6 cm. lata; racemi squarrosi suberecti rigidi 7-10flori, 2-4 cm. longi; flores plerique erecti albi; pedicelli cum ovario 0·8-0·9 cm. longi; sepala lateralialia patentia oblongo-ob lanceolata subacuta, 0·6 cm. longa, parte latiore 0·22 cm. lata; sepalum impar erectum oblongum obtusissimum subconcavum basi dente in utroque margine auctum, 0·6 cm. longum, 0·45 cm. latum; petala erecto-patentia, oblique ovata subacuta, sepalis paullo breviora, 0·32 cm. lata; labelli lamina ovata obtusa concava, apice decurva, petalis æquilonga, calcare basi inflata, deinde cylindrico incurvo, 2 cm. longo; columna decurva oblonga vel subrhomboidea infra medium dilatata; rostellum exappendiculatum; pollinia lenticularia, stipitibus filiformibus, glandulis ovatis. (*Ex exempll. viventibus.*)

**Hab** : South-eastern Region ; **NATAL** : near Durban, on trees, alt. 150 meters, fl. Jan., *A. D. Millar* (Natal Gov. Herb., No. 8437 !)

**Plate 5.** Fig. 1, flower, front view; 2, side sepal; 3, odd sepal; 4, one of the petals; 5, lip, back view; 6, ditto, side view; 7, column, side view; 8, ditto, front view; 9, ditto, with the pollinarium in situ; 10, pollinarium,—all variously magnified.

A glabrous caulescent epiphyte; roots 0·23 cm. in diam; stem stout, 0·4-0·5 cm. in diam.; leaves 2-3, mostly crowded at the apex of the stem, erect-spreading ligulate somewhat undulate unequally bilobed, the lobes somewhat obtuse, the medial nerve depressed, coriaceous, 8·5 cm. long, 1·4-1·6 cm. wide; racemes horizontally spreading or somewhat ascending, rigid 7-10flowered, 2-4 cm. long; flowers usually erect white; pedicels

with the ovaries 0·8-0·9 cm. long ; lateral sepals spreading oblong-ob lanceolate subacute 0·6 cm. long, 0·22 cm. wide in the broader part ; odd sepal erect oblong obtuse somewhat concave, provided at the base on each side of the margin with a tooth, 0·6 cm. long, 0·45 cm. wide ; petals erect-spreading obliquely ovate somewhat acute, a little shorter than the sepals, 0·32 cm. wide ; limb of the lip ovate obtuse concave recurved at the apex, as long as the petals ; spur inflated at the base, then cylindrical, incurved 2 cm. long ; column incurved oblong or somewhat rhomboidal dilated below the middle ; rostellum without bearded appendages, pollinia lenticular attached by filiform caudicles to the ovate glands.

Described from fresh specimens ; flowers white. In the general appearance of the flowers this resembles *M. gracile* Harv. ; but the shape of the perianth segments and the nude rostellum shew it to be quite distinct.

## TAB 6.

Tribe VANDEÆ.

Sub-tribe SARCANTHÆÆ.

Genus MYSTACIDIUM.

**Mystacidium Peglerae**, *Bolus, in Trans. South African Philosoph. Soc.*, vol. xvi., pt. 2, p. 146.—Epiphyta glabra; radices ærales filiformes, 0·15 cm. crassæ; caulis validus foliatus, 5·6 cm. longus; folia disticha erecto-patentia ligulata inæqualiter biloba, lobulis obtusis, basi angustata semiamplexicaulia coriacea, 3·5 cm. longa, 0·7-1 cm. lata; racemi squarroso-patentes; rhachis fractiflexa, 5-6flora, 4·5 cm. longa; flores erecti, albi; sepala lateraliter patentia oblanceolata acuta, 0·25 cm. longa; sepalum impar erectum oblongum ovatumve obtusum, quam lateraliter paullo brevius; petala erecto-patentia rhomboidea angulis rotundatis, 0·18 cm. longa, 0·17 cm. lata; labellum arcuato-deflexum, sublabelloforme, angulis rotundatis, margine antico obscure 3lobo, lateralibus subundulatis, tota lamina manu explanata 0·35-0·4 cm. longa, basi in calcar dependens subincurvum cylindricum, 0·5 cm. longum, 0·075 cm. crassum productum; columna decurva, oblonga, emarginata; rostellum deflexum lanceolatum acutum; pollinia globosa in stipitibus capillaceis affixa; glandulæ ovatæ minimæ. (*Ex exempl. exsicc., floribusque in formal. servatis.*)

**Hab:** **South-eastern Region;** CAPE COLONY: in a forest near Kentani, alt., 360 meters, fl. Feb., *Alice Pegler*, 993!

**Plate 6.** A. Fig. 1, flower, front view; 2 ditto, side view; 3, odd sepal; 4, side sepal; 5, one of the petals; 6, lip, front view; 7, ditto, side view; 8, column, front view shewing the pollinarium in situ; 9, ditto, side view; 10, pollinarium,—all variously magnified.

A glabrous epiphyte; aerial roots filiform, 0·15 cm. thick; stem stout leafy, 5·6 cm. long; leaves distichous erect-spreading ligulate unequally bilobed, the lobes obtuse, narrowed at the base, semiamplexicaul coriaceous, 3·5 cm. long, 0·7-1 cm. wide; racemes squarrosely spreading 5-6flowered, 4·5 cm. long; flowers erect white; side sepals spreading oblanceolate acute 0·25 cm. long; odd sepal erect oblong or ovate obtuse a little shorter than the lateral sepals; petals erect-spreading, rhomboidal with rounded angles, 0·18 cm. long, 0·17 cm. wide; lip arcuate-deflexed somewhat flabelliform with the angles rounded, the anterior margin obscurely 3lobed, the lateral margins somewhat undulate, the whole lamina flattened out 0·35-0·4 cm. long, produced at the base into a pendant somewhat incurved cylindrical spur 0·5 cm. long, 0·075 cm. in diam.; column incurved oblong emarginate; rostellum deflexed lanceolate acute; pollinia globose affixed by filiform stalks to the very small ovate glands.

Described from dried specimens and fresh flowers preserved in formalin. In general appearance this most nearly resembles *M. Caffrum mihi*, but is well distinguished by its smaller flowers, different sepals and petals and more especially the lip.

**Mystacidium Aliciæ**, n. sp. — Epiphytica acaulis pusilla glabra; radices ærales filiformes 0·08-0·09 cm. crassæ; folia 2-4 patentia obovato-oblonga inæqualiter obtuseque biloba coriacea 2-2·5 cm. longa; racemi patentes graciles sublaxe 3-5flori, 0·8-1 cm. longi; rhachis flexuosa; pedicelli gracillimi, cum ovariis 0·6 cm. longi; sepala lateralìa patentì-decurva, oblonga, acuta, 0·4 cm. longa; sepalum impar erectum conforme; petala erecto-patentia ovata acuta sepalis æquilonga; labelli lamina arcuato-decurva lanceolata acuta marginibus incurvis petalis subæquilonga, calcare pendulo cylindrico subrecto, apicem versus sensim attenuato, acuto, 0·8-0·9 cm. longo, medio 0·06 cm. diametiente; rostellum porrectum deflexum subulatum acutum, appendice lineari barbata in utroque latere ornatum; pollinia lenticularia, in stipitibus filiformibus tenuissimis affixa; glandulæ lanceolatæ minimæ.

**Hab : South-eastern Region ;** CAPE COLONY: in a forest near Kentani, alt. 305 meters, fl. Feb., *Alice Pegler*, 886 !

**Plate 6.** B. Fig. 1, flower, front view; 2, ditto, side view; 3, odd sepal; 4, side sepal; 5, one of the petals; 6, upper portion of lip, side view; 7, column, side view; 8, ditto, front view, shewing the pollinarium in situ; 9, rostellum; 10, pollinarium.

A small glabrous acaulescent epiphyte; aerial roots filiform 0·08-0·09 cm. in diameter; leaves 2-4 spreading obovate-oblong unequally and obtusely bilobed coriaceous, 2-2·5 cm. long; racemes spreading slender somewhat laxly 3-5flowered, 0·8-1 cm. long; rhachis flexuose; pedicels very slender, together with the ovaries 0·6 cm. long; side sepals spreading-decurved oblong acute, 0·4 cm. long; odd sepal erect similar in shape; petals erect-spreading ovate acute, as long as the sepals; limb of the lip arcuate-decurved lanceolate acute, with the margins incurved, as long as the petals; spur pendulous cylindrical almost straight, gradually attenuated towards the apex, acute 0·8-0·9 cm. long, at the middle 0·06 cm. in diameter; rostellum projecting forward then deflexed subulate acute, furnished with a bearded linear appendage on each side; pollinia lenticular attached by very slender filiform stalks to the lanceolate glands.

Described from fresh specimens. The flowers are white or pale cream and the leaves dark olive green, not glossy, paler and subglaucous below. Allied to *M. pusillum Harv.*, but the flowers are larger, the perianth segments are differently shaped and equal in length, while the spur of the lip is much shorter. The column and rostellum also are different.



## TAB. 7.

Tribe EPIDENDREÆ.

Sub-tribe CŒLOGYNEÆ.

Genus CALANTHE.

**Calanthe natalensis**, *Reichb. f.*, in *Bonplandia* (1856), *p.* 322.

—Herba erecta, circa 45 cm. alta ; folia 5-6, oblongo-lanceolata nervoso-plicata, basi angustata, glabra vel minute pubescentia, 25-35 cm. longa, 6-8 cm. lata ; scapus strictus, teres pubescens, vaginis 2-3 distantibus præditus, 35-45 cm. longus ; spica laxe 15-18flora, bracteis ovario parum brevioribus, persistentibus ; flores expansi, 3 cm. lati ; sepala lanceolata acuta 1.5 cm. longa, extus pubescentia ; petala oblanceolata glabra, æquilonga ; labellum 3lobatum subæquilongum, lobo medio antice subtruncato emarginato sub apice mucronato, lobis lateralibus cuneatis multo brevioribus subobtusis, disco seriebus tribus callorum instructo, basi in calcar filiforme arcuatum plerumque ovario longius productum ; ovarium gracile arcuatum pubescens, 2.5 cm. longum. (*Ex exempll. viv. duobus cultis sub num. 6101 exsiccatis.*) *Bot. Mag.*, *t.* 6844 ; *C. sylvatica*, *var. natalensis*, *Reichb. f. in Linnaea*, *xix.*, *p.* 374.

*Hab* : **South-eastern Region** ; CAPE COLONY : woods, Perie Bush near King William's Town, fl. Dec.-Jan., *A. Walsh* ; afterwards cultivated in botanic gardens at Port Elizabeth and Cape Town, *Bolus*, 6101 ! ; "thickest and rockiest part of Perie Bush," *D'Urban*, 108 ; NATAL : Kirkman's Cutting, Maritzburg Road, 450-610 meters, *Sanderson*, 1047 ; "Bush Swamp, The Bluff, head of Natal Bay," *Sanderson*, 1003.

**Plate 7.** Fig. 1, odd sepal ; 2, petal ; 3, lip ; 4, column, side view ; 5, ditto, front view ; 6, ditto, shewing the pollinarium in situ ; 7, 8, pollinarium.

An erect herb, about 45 cm. high ; leaves 5-6, oblong-lanceolate, plicately nerved, narrowed at the base, glabrous or minutely pubescent 25-35 cm. long, 6-8 cm. wide ; scape straight, terete, pubescent, robust, furnished with two or three sheaths, 35-45 cm. long ; spike laxly 15-18flowered, with the bracts a little shorter than the ovary, persistent ; flowers expanded, 3 cm. wide ; sepals lanceolate

acute 1.5 cm. long pubescent on the outside ; petals oblanceolate glabrous, as long as the sepals ; lip 3lobed, the intermediate lobe somewhat truncate, emarginate, mucronate, lateral lobes cuneate, much shorter, rather obtuse, disk furnished with three rows of fleshy tubercles, produced at base into a filiform arcuate spur, usually longer than the ovary ; ovary slender arcuate pubescent, 2.5 cm. long.

Described from two living cultivated specimens. The flowers are lilac, the labellum showing a tendency towards a salmon-colour as they advance in age. The Perie Bush is the only station in Cape Colony from which it has been recorded.

## TAB. 8.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus ACROLOPHIA.

**Acrolophia micrantha**, *Schlechter and Bolus, in Journ. Bot., vol. xxxii., p. 332 (1894).*—Herba erecta caulescens ramosa glabra robusta, ad 70 cm. alta; caulis foliosus, 28 cm. longus; folia erecto-patentia equitantia ensiformia acuta complicata margine carinaque serrulata rigida 15-25 cm. longa; panicula terminalis, pedunculo ramulisque vaginis lanceolatis submembranaceis, 7-10 cm. longis vestitis; bracteæ lanceolatae vel ovato-lanceolatae, ovariis pedicellatis parum breviores vel æquilongæ; sepala ovata obtusiuscula minute pellucido-punctata, 0.5 cm. longa; petala oblique ovata obtusiuscula, 0.4 cm. longa; labellum cochleari-concavum circuitu oblongum, lineis 2 caruncularum e basi labelli in lobo intermedio in lineas 4 dissolutis, 0.4 cm. longum a calcaris ostio usque ad apicem lobi intermedii, 3lobum, lobis lateralibus erectis rotundatis vel subacutis lineatis vix 0.2 cm. longis, intermedio valde concavo rotundato vel subtruncato margine undulato-crispato, calcare brevi subgloboso, vix 0.2 cm. longo; columna apoda 0.3 cm. longa; pollinia subglobosa stipite late lineari; glandula subquadrata; capsula pendula ovoidea ad 2 cm. longa 1.5 cm. diam. (*Ex exempll. 2, exsiccatis*). *Eulophia micrantha*, *Lindley Gen. & Sp. Orch. p. 184*; *Acrolophia fimbriata*, *Schltr. in Engl. Bot. Jahrb. vol. xxvi., p. 340 (1899).*

**Hab. :** **South-western Region ;** CAPE COLONY : in pockets of rocks, Rietfontein-Poort, near Elim, alt. 40 meters, fl. Dec., *R. Schlechter, 9703 !* **South-eastern Region ;** between Coega and Sunday's River ; between Bethelsdorp and Van Staaden's River, *Drège*.

**Plate 8.** Fig. 1, whole plant reduced; 2, branch of panicle, natural size; 3, flower, side view; 4, ditto, front view; 5, odd sepal; 6, side sepal; 7, one of the petals; 8, lip and column, front view; 9, ditto, side view; 10, column and ovary, front view; 11, ditto, side view; 12, pollinarium, front view; 13, ditto, side view,—all variously magnified.

An erect caulescent branched glabrous robust herb, 70 cm. high; stem leafy, 28 cm. long; leaves erect-spreading equitant

ensiform acute complicate serrulate on the margin and carina, rigid, 15-25 cm. long ; panicle terminal, the peduncle and branches clothed with lanceolate submembranous sheaths, 7-10 cm. long ; bracts lanceolate or ovate-lanceolate, a little shorter than, or equal to, the pedicellate ovaries in length ; sepals ovate, rather obtuse, minutely pellucid-punctate, 0·5 cm. long ; petals obliquely ovate, rather obtuse, 0·4 cm. long ; lip spoon-shaped, oblong in outline when flattened, provided with two fleshy ridges rising at the base of the lip which divide up into 4 ridges in the intermediate lobe, 0·4 cm. long (from the mouth of the spur to the apex of the intermediate lobe), 3lobed, the lateral lobes erect rotundate or subacute lineate, not quite 0·2 cm. long, intermediate lobe strongly concave, rotundate or subtruncate undulate—crisped on the margin, the spur short subglobose, scarcely 0·2 cm. long ; column without a foot, 0·3 cm. long ; pollinia subglobose, the caudicle broadly linear ; gland subquadrate ; capsule pendulous ovoid up to 2 cm. long, 1·5 cm. diam.

Described from two dried specimens. I am indebted to Mr. R. A. Rolfe for calling my attention to the fact that *Acrolophia fimbriata*, Schltr. is identical with *A. micrantha*, Schltr. & Bolus (*Eulophia micrantha* Lindl.) and that the commoner species figured by me in the first volume of this work under Tab. 4, as *Eulophia micrantha*, Lindl. is *A. cochlearis*, Schltr. & Bolus, while the plant figured under Tab. 5, as *Eulophia cochlearis* Lindl. (*A. cochlearis* Schltr. & Bolus) was really an undescribed species and quite distinct from the latter.

## TAB. 9.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Dregeana**, *Lindley in Hook. Comp. Bot. Mag.*, vol. ii., p. 202 (1836).—Herba erecta glabra robusta, ad 40 cm. alta; folia 4-10 erecto-patentia demum recurva ensiformia acuminata, ad 40 cm., sæpius 15-20 cm. longa, 0·8-2 cm. lata; scapus erectus vaginis imbricantibus, vel subdistantibus acuminatis membranaceis vestitus; racemus 5-11-florus, floribus patentibus; bracteæ lanceolatae membranaceæ acutæ ovaria  $\pm$  æquantes; sepala lanceolata vel oblongo-lanceolata, acuta vel interdum acuminata, 1·6-2·6 cm. longa; petala oblonga vel ovata acuta, sepalis latiora, sed eis subæquilonga; labellum oblongum 3lobum petala subæquans, lobis lateralibus multo minoribus rotundatis, intermedio semi-orbiculari plano cristato, basi in calcar cylindricum obtusum 0·4-0·6 cm. longum productum; columna oblonga, basi in pedem porrectum productum; pollinia in stipitem oblongum per filum extensivum affixa. (*Ex exempll. plur. vivis exsiccatisque*).

**Hab : South-eastern Region ;** CAPE COLONY : Lower Albany; mouth of Kleinemund R., *P. MacOran*; Round Hill alt. circ. 300 meters, fl. Dec., *Bolus*, 7368; near Komgha, alt. 600 meters, fl. Dec., *H. G. Flanagan*, 2254!; Griqualand East, mt. sides near Matatiele, alt. 1650 meters, fl. Jan., *W. Tyson*, 1596! Stockenstrom district, Chumie Peak, fl. Dec., *W. Scully*, 173!; Queenstown district, fl. Nov., *Zeyher*, 6; NATAL: near Camperdown, *Wood*, 1960; TRANS-VAAL, grassy hill slopes, near Barberton, alt. 600-1200 meters, fl. Dec., *E. E. Galpin*, 719!; *W. Culver*, 17!; hills near Klein Olifant's R., alt. 1500 meters, fl. Dec., *R. Schlechter*, 4049! Wonderfontein, Middelburg district, alt. 1830 meters, fl. Jan., *Bolus*, 12306.

**Plate 9.** Figs. 1 and 3, flower, front view; 2, ditto, side view; 4, lip; 5, column, side view; 6, ditto, front view; 7, pollinarium; 8, ditto, shewing the extensile threads; 9, section of the ovary; 10, a larger flower from a different plant; 11, 12, sepals from the last; 13, one of the petals; 14, lip from the same plant; 15, 16, column, ditto.



An erect glabrous robust herb from 1-1½ feet high ; leaves 4-10, well evolute during the flowering period, erect-spreading, finally recurved, ensiform, acuminate, up to 40 cm. long (usually 15-20), 0·8-2 cm. broad ; scape erect, clothed with imbricating or somewhat distant acuminate membranous sheaths ; raceme 5-11 flowered, flowers spreading ; bracts lanceolate membranous acute, more or less equalling the ovary ; sepals lanceolate or oblong-lanceolate, acute or sometimes acuminate 1·6-2·3 cm. long ; petals oblong or ovate acute, about as long as the sepals but always broader ; lip oblong 3lobed, about as long as the petals, the lateral lobes, much smaller than the intermediate lobe which is semi-orbicular flat, crested, produced at base into a cylindrical obtuse spur about 0·4-0·6 cm. long ; column oblong, produced at base into a projecting foot ; pollinia affixed to the oblong stipe by an extensile thread.

Described from many dried and fresh specimens, the drawing from a rather small one sent by Dr. Schonland from Grahamstown. The analyses of the figs. 1-9 were made from living plants (but in poor condition) received from P. MacOwan, who received them from H. Hutton, Kowie. The flowers were smaller than usual. This is one of the commonest of the Eulophiæ in the Eastern Region, but appears to be entirely absent in the West.

## TAB. 10.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Oliveriana**, *Bolus, in Journ. Linn. Soc., vol. xxv.* (1890), *p.* 185.—Herba valida, erecta, glabra, ad 30 cm. alta; folia 2, vel rarius 1, per anthesin evoluta, erecta linearia, acuminata, rigida, prominenter nervata, ad 30 cm. longa, 0·4-1 cm. lata; scapus vaginis lanceolatis acuminatis membranaceis imbricatis ad. 8 cm. longis arcte vestitus; racemus sub-abbreviatus, 9-15 fl. 2·5-5 cm. longus; bracteae lanceolatae membranaceae ovaria æquantes vel superantes; flores nutantes vel rarius patentes; sepala oblonga acuta vel obtusa 1-1·5 cm. longa; petala paullulo latiora, sub-obovata; labellum suborbiculare, 3lobum, 0·8-1·2 cm. longum, lobis obtusissimis subæqualibus vel lobo intermedio rarius parum majore, lineis callosis duabus cristato; columna basi in pedem porrectum productum. (*Ex exempll. plur. vivis exsiccatisque.*)—*Cyrtopera Oliveriana*, *Reichb. f. in "Flora"* (1881), 329.

*Hab. : South-eastern Region ;* CAPE COLONY: Pirie, near King William's Town, alt. 1,200 meters, fl. Nov., *T. R. Sim*, 1268!; Katberg summit, alt. 1500 met., fl. Dec., *E. E. Galpin*, 1684!; Griqualand East, Vaal Bank, fl. Dec., *W. Haygarth*, in herb. *Wood* No. 4202! NATAL: Liddesdale, alt. 1500 met., fl. Dec., *J. M. Wood*, 4259!; Van Renen's Pass, alt. 1500-1800 met., fl., Dec., *J. M. Wood*, 7545!—ORANGE FREE STATE: Eland's River Valley, and Bester's Vallei, district Harrismith, alt. 1800 met., fl. Dec.-Jan. *Flanagan*, 1986! *H. Bolus*, 8300.—TRANS-VAAL: Hooge Veld, between Middelburg and Eland's-Spruit-bergen, near Bergendal, alt. 2040 met., fl. Dec., *R. Schlechter*!

A robust erect glabrous herb up to 30 cm. high; leaves 2, or more rarely 1, evolute during the flowering period, erect linear acuminate rigid prominently nerved, up to 30 cm. long, 0·4-1 cm. wide, scape closely clothed with lanceolate acuminate imbricating membranous sheaths about 8 cm. long; bracts lanceolate equalling or exceeding the ovaries; flowers nodding or more rarely spreading; sepals oblong obtuse or acute 1-1·5 cm. long; petals a little broader subovate; lip suborbicular 3lobed 0·8-1·2 cm. long, lobes

very obtuse subequal, or the intermediate lobe more rarely a little larger, crested with two lines of tubercles ; column produced at base into a projecting foot.

**Plate 10.** Figs. 1, 2, flowers enlarged ; 3, odd sepal ; 4, 4, side sepals ; 5, 5, petals ; 6, lip, all natural size ; 7, lip, enlarged ; 8, lip, with column, side view, enlarged ; 9, column, side view, enlarged ; 10, ditto, front view, ditto ; 11, pollinarium, enlarged ; 12, operculum.

A stout plant generally recognizable in the field by its dull mauve-coloured flowers. It is pretty frequent in the mountains on the South-east of Southern Africa, but there is no record of its occurrence west of King William's Town.

## TAB. 11.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia nutans?** *Sonder, in "Linnæa," vol. xix., p. 73 (1847).*—Herba erecta glabra, 20-50 cm. alta; folia 3-4, fasciculata, per anthesin bene evoluta, lineari-ensiformia erecta, 12-47 cm. longa; scapus foliis parum brevior, vaginis 4-5 acuminatis, membranaceis saepe imbricantibus vestitus; racemus laxè 5-16florus, floribus adscendentibus, vel demum nutantibus; bracteæ lanceolatae acuminatae pedicello cum ovario æquilongæ; sepala patentia lanceolata vel sæpius oblonga acuta 0·8-0·9 cm. longa; petala oblonga, vel late elliptica, 0·7-0·8 cm. longa; labellum circumscriptione late ovatum basi rotundatum, 0·9 cm. longum, 3lobum, lobis lateralibus rotundatis, intermedio sub-quadrato, angulis rotundatis, emarginato, e basi fere ad apicem tuberculato-cristato 0·4 cm. longo, calcare cylindrico, 0·3-0·4 cm. longo; columna subtetragona apoda, 0·4 cm. longa; ovarium cum pedicello 1·5 cm. longum; capsula clavata angulata subalata. (*Ex exempll. plur. vivis exsiccatisque.*)

**Hab:** **South-eastern Region;** CAPE COLONY: Coldstream, near Grahamstown, alt. 690 meters, fl. Dec., *Bolus*, 7366; same place, fl. Jan., *J. Glass*; *Kentani*, alt. 450 met., fl. Dec., *Alice Pegler*, 290!

**Plate 11.** Fig. 1, flower, front view; 2, odd sepal; 3, 3, lateral sepals; 4, 4, petals; 5, lip with column and ovary; 6, lip with spur; 7, column; 8, operculum; 9, pollinarium, front view; 10, ditto, side view.

An erect glabrous herb 20-50 cm. high; leaves 3-4 fasciculate, well developed during flowering time, linear-ensiform erect, 12-47 cm. long; scape somewhat shorter than the leaves, clothed with 4-5 membranous acuminate usually imbricating sheaths; raceme laxly 5-16flowered, flowers ascending or at length nodding; bracts lanceolate acuminate about as long as the pedicel and ovary; sepals spreading lanceolate or more often oblong acute, 0·8-0·9 cm. long; petals oblong or broadly elliptical 0·7-0·8 cm. long; lip in outline broad ovate, rounded at base, 3lobed, side

lobes rounded, the intermediate lobe somewhat square with rounded angles, retuse, 0·3-0·4 cm. long, crested from the base nearly to the apex ; spur cylindrical 0·3-0·4 cm. long, column subtetragonous, without any projecting foot ; ovary with pedicel 1·5 cm. long ; capsule clavate angled or slightly winged.

Described from several living and dried specimens ; the plate drawn from one received in a living state, kindly sent to me by Mr. Glass, from Coldstream.

I have not been able to see Dr. Sonder's type of this species, and identification from old and dried specimens must always remain a little doubtful. The specimens I have seen agree fairly well with Sonder's original description, nevertheless I feel bound to cite his name with a mark of doubt.



## TAB. 12.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia streptopetala**, *Lindley, in Bot. Reg. vol. xii., t. 1002 (1826).*—Herba erecta robusta glabra, '35-1 met. alta; folia 4-6, basin bulbosam vaginantia erecto-patentia linearilanceolata acuta, paullo supra basin articulata, nervis primariis subtus valde prominentibus, per anthesin bene evoluta, 15-35 cm. longa, ad 2·5 cm. lata; scapus validus, vaginis subdistantibus acuminatis membranaceis vestitus; racemus laxe 7-15florus, floribus patentibus demum nutantibus; bracteæ oblongo-lanceolatæ ovario breviores; sepala sæpius patentia demum rarius reflexa oblongo-oblancheolata subobliqua maculata, 1·2-1·4 cm. longa; petala unguis torsione plus minus reversa, subrhomboideo-orbicularia, sepalis æquilonga; labellum petalis subæqui-longum 3lobum, lobis lateralibus erectis oblongo-obovatis 0·5-0·7 cm. longis, intermedio convexo oblongo-obovato tuberculato-cristato, carunculis inconspicuis, 0·8-1·1 cm. longo, calcare subobconico, junctio loborum posito, circ. 0·3 cm. longo; columna oblonga apoda, 0·6-0·9 cm. longa; pollinia oblonga in stipitem oblongum 0·3 cm. longum affixa; ovarium cum pedicello 1·5-2 cm. longum; capsula cylindrica basi angustata, 4 cm. longa. (*Ex exempll. plur. vivis exsiccatisque*).—*Lissochilus streptopetalus*, *Lindl., Gen. & Sp. Orch. (1833), p. 191*; *L. parviflorus*, *Lindl., ibid.; Bot. Mag., t. 2931.*

**Hab. : South-eastern Region ;** CAPE COLONY: woods near Uitenhage, alt. 340 met., fl. Jan., *Bolus*, 1551; Coldstream, near Grahamstown, fl. Dec., *Schönland*, 444!; King William's Town, fl. Jan., *T. R. Sim*, 28!; woods near Komgha, alt. 600 met., fl. Dec., *H. G. Flanagan*, 345!.—TRANS-VAAL: hillsides round Barberton, alt. 840-990 met., fl. Nov.-Dec., *E. E. Galpin*, 669!

**Plate 12.** Fig. 1, flower, front view, magnified 2 diameters; 2, ditto, from another plant, back view, natural size; 3, column and lip, side view; 4, column; 5, pollinarium—variously magnified.

An erect robust glabrous herb, '35-1 met. high; leaves 4-6, sheathing at base the somewhat large pseudo-bulbs, erect-spreading linear-lanceolate acute, articulate a little above the base.

the primary nerves very prominent below, well developed during the flowering period, 15-35 cm. long, up to 2·5 cm. broad; scape stout, clothed with rather distant acuminate membranous sheaths; raceme laxly 7-15 flowered, flowers spreading, at length nodding; bracts oblong-lanceolate shorter than the ovary; sepals more usually spreading, afterwards more rarely reflexed, oblong-lanceolate, somewhat oblique, spotted, 1·2-1·4 cm. long; petals through the twisting of the claw more or less reversed, somewhat rhomboid-orbicular, as long as the sepals; lip about as long as the petals, 3lobed, lateral lobes erect, oblong-obovate, 0·5-0·7 cm. long, intermediate convex oblong-obovate tuberculate-cristate, the tubercles inconspicuous, 0·8-1·1 cm. long, spur somewhat obconic, placed at the junction of the lobes, about 0·3 cm. long; column oblong without a projecting foot, 0·6-0·9 cm. long; pollinia oblong, affixed to an oblong stipe 0·3 cm. long; ovary with the pedicel 1·5-2 cm. long; capsule cylindrical, narrowed at the base, 4 cm. long.

Described from several living and dried specimens; the figure drawn from a plant which flowered in Mrs. C. E. Geard's garden at Graaff Reinet in November, 1890.

## TAB. 13.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia speciosa**, *Bolus, in Journ. Linn. Soc., vol. xxv., p. 184 (1890).*—Herba erecta glabra 50-90 cm. alta; folia 3-4, erecto-patentia ensiformia crassiuscula rigida, arcte venosa, sæpius per anthesin bene evoluta, 20-35 cm. longa, 2-3 cm. lata; scapus validus, vaginis 2-3, distantibus acutis 3-5 cm. longis, vestitus; racemus laxè multi-florus, floribus patentibus; bracteæ oblongo-lanceolatæ, ovario breviores; sepala reflexa oblonga vel ovata acuta vel rarius acuminata, 0·8-1·3 cm. longa; petala divaricata ovata vel late elliptico-ovata obtusa vel acutiuscula, 1·3-2·4 cm. longa; labellum circumscriptione ovato-oblongum, petalis æquilongum, 3lobum, lobis lateralibus rotundatis, parte inferiore columnæ adnatis, apice libera patentibus, intermedio multo majore oblongo emarginato, marginibus undulatis, convexo, apicem versus arcuato-inflexo, subprominenter carunculorum lineis cristato, calcare saccato obconico; columna oblonga apoda 0·5-0·7 cm. longa; pollinia subovata; ovarium cum pedicello 1·5-3·2 cm. longum. (*Ex exempll. plur. vivis exsiccatisque*).—*Satyrium giganteum*, *Linn. f., Suppl. (1781), 402; Murr. Syst. Veg. ed xiv. (1784), 1811; Limodorum giganteum, Thunb., Prodr. Pl. Cap. (1794), 4; Cymbidium giganteum, Sw., in Kongl. Vet. Acad. Handl. xxi. (1800), 288; Willd. Sp. Plant iv. (1805), 107; Thunb. Flor. Cap., 28; Lissochilus speciosus, R. Br., in Lindley Coll. Bot. (1821), t. 31; Bot. Reg. t. 573.*

**Hab: South-eastern Region; CAPE COLONY:** sand-dunes near the mouth of the Coega R., fl. Dec., *Ecklon & Zeyher, 3894!*; sea-shore near Kei R. mouth, fl. Jan., *H. G. Flanagan, 1025!*; coast near Kentani, fl. Oct.-Dec., *Alice Pegler, 782!*—**TRANS-VAAL:** Pietersburg district, hills near Potgieter's Rust, alt. 1080 met., fl. Feb., *Bolus, 11165*; near Barberton, alt. 600-870 met., fl. Nov.-Jan., *E. E. Galpin, 668!*—**RHODESIA:** Mazoe, alt. 1440 met., fl. Nov., *F. Eyles, 463!*

**Plate 13.** Fig. 1, lip and column, oblique view; 2, ditto, flattened out; 3, ditto, front view; 4, column, side view; 5, pollinarium, back view; 6, ditto, side view; 7, ditto, front view.

An erect glabrous herb 50-90 cm. high; leaves 3-4, erect-spreading ensiform rather thick rigid closely veined, usually well developed during the flowering period, 20-35 cm. long, 2-3 cm. wide; scape stout furnished with 2 or 3, distant acute sheaths, 3-5 cm. long; raceme laxly many-flowered, flowers spreading; bracts oblong-lanceolate, shorter than the ovary; sepals reflexed oblong or ovate acute or more rarely acuminate, 0.8-1.3 cm. long; petals wide-spreading ovate or broadly elliptic ovate obtuse or rather acute, 1.3-2.4 cm. long; lip ovate-oblong in outline, as long as the petals, 3lobed, the lateral lobes rounded, in the lower part adnate to the column, the upper part free, spreading, the intermediate lobe much larger oblong emarginate, margins undulate, convex, towards the apex arcuate inflexed, rather prominently crested with lines of fleshy tubercles, the spur saccate obconic; column oblong without a projecting foot, 0.5-0.7 cm. long; pollinia somewhat ovate; ovary with the pedicel 1.5-3.2 cm. long.

## TAB. 14.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Flanaganii**, *Bolus, in Trans. South African Philosoph. Soc., vol. xvi., Part ii., p. 143 (1905).*—Herba gracilis erecta glabra,  $1\frac{1}{4}$ - $1\frac{1}{2}$ -pedalis; folia circiter 4, synanthia rigida lineari-ensiformia acuminata multi-nervia, 25-35 cm. longa, 0.3-0.7 cm. (sæpius 0.3-0.4 cm.) lata; scapus rectus subflexuosusve, striatus, 0.2-0.25 cm. diametro, foliis longior, vaginis 4 appressis acutis vel acuminatis multinerviis rigidis, stramineis vestitus, inferioribus 5 cm. longis, superioribus sensim brevioribus; sepala patentia æqualia oblonga, breviter acuta, glauco-virescentia, 0.9 cm. longa, 0.25 cm. lata; petala super labellum deflexa, oblonga, sepalis æquilonga sed parum latiora apiculata, lilacina; labellum porrectum cuneatum 3lobum lilacinum sepalis æquilongum, lobis lateralibus abbreviatis lanceolatis acutis, lobo intermedio multo majore quadrato subtruncato vel leviter retuso, apice 0.5 cm. lato, infra apicem papillis setiformibus acuminatis hyalinis, in fasciculo confertis, basin versus papillis brevioribus in seriebus tribus dispositis ornatum; calcare ovato, 0.2 cm. longo; columna oblonga sessilis subtetragona, nec in pedem basi producta, periantho brevior; pollinia in stipitibus discretis inter se parum distantibus per filum extensivum affixa, glandulis ovatis discretis (an semper?).

**Hab.:** **South-eastern Region;** CAPE COLONY: Komgha Division, on grassy slopes, near the mouth of the Kei River, alt. about 60 met., fl. Jan., *H. G. Flanagan*, 1029 (in herbb. Kew, Bolus, etc.); **Upper Region;** mountain slopes near Queenstown, alt. 1200 met., fl. Jan., *E. E. Galpin*, 1713!, Eland's Hoek, near Aliwal North, fl. Nov.-Jan., *F. Bolus*, (10544 in my herb.).

Described and drawn from living specimens received from Mr. H. G. Flanagan, in October, 1893. The colour of the flowers varies somewhat; the sepals are usually cold grey-green, the petals and lip lilac with purple edges near the apex. The separation of the stipites and glands may be a sport. I found it identical in two flowers of Flanagan's 1029, but have not observed



it in any other species. In some of the *Eulophiæ* the colours of the flowers vary considerably, especially in the lip, and too much reliance cannot be placed on it; in others, especially the unicoloured species, there is little variation. The present species somewhat resembles *E. laxiflora Schlechter*, but is readily distinguishable from that by the absence of any projecting foot at the base of the column. From *E. æmula Schlechter* it may be known by the broader sepals and petals and by the broad truncated apex of the middle lobe of the lip.

## TAB. 15.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia laxiflora**, *Schlechter*, in *Engl. Bot. Jahrb.*, vol. xx., *Beibl.* 50, p. 4 (1895).—Herba erecta 20-40 cm. alta; folia 3-6, fasciculata erecto-patentia anguste linearia acuminata 10-30 cm. longa; scapus subflexuosus, vaginis 3-4 appressis distantibus vel subimbricantibus acuminatis vestitus; racemus simplex vel rarissime (in duobus exemplaribus) paniculatus, laxissime 6-15 florus, floribus sæpissime adscendentibus; bracteæ ovatæ acuminatæ ovario pedicellato multo breviores; sepala lineari-oblonga acuta 1.1-1.3 cm. longa; petala oblonga acuta vel obtusa, 1.1-2 cm. longa; labellum circuitu ovato-oblongum, petalis subæquilongum, 3lobum, lobis lateralibus semi-ovatis acutis, intermedio duplo longiore, obovato, apice truncato vel rotundato, conspicue tuberculato-cristato, calcare cylindricum leviter incurvo, labello triplo brevior; columna oblonga basi in pedem porrectum producta, antice valde concava. (*Ex exempll. duobus vivis multisque exsiccatis.*)

*Hab*: CAPE COLONY: **Upper Region**; Queenstown on Lesseyton Nek, alt. 1200 met., fl. Jan., *E. E. Galpin*, 1713! near Aliwal North, alt. 1290 met., fl. Jan., *F. Bolus* (No. 10543 in my herb.)—**South-eastern Region**; near Komgha, alt. 600 met., fl. Feb., *H. G. Flanagan*, 1699!; near Kei R. Mouth, alt. 30 met., fl. Jan., *idem*, 1031!—NATAL: Blauw Krantz, fl. Dec., *J. M. Wood*, 3430!; near Itafamasi, fl. Dec., *idem*, 725.—TRANS-VAAL: near Pretoria, alt. 1440 met., fl. Jan., *R. Schlechter*, 4143!; between Rustenburg and Johannesburg, fl. Feb., *Alice Pegler*!; Springbok Flats, Waterberg Dist., fl. Dec., *J. Burt Davy*, 1024!; between Pietersburg and Houtbosch, alt. 1350 met., fl. Feb., *Bolus*, 11164.

**Plate 15.** Fig. 1, flower, side view; 2, ditto, front view; 3, lip and column, side view; 4, lip, front view; 5, 5, side sepals; 6, odd sepal; 7, one of the petals; 8, column, oblique view; 9, a transverse section of the column.

An erect herb, 20-40 cm. high; leaves 4-6, fasciculate erect-spreading narrow-linear acuminate 10-30 cm. long; scape some-

what flexuous, with 3-4 appressed distant or slightly imbricating acuminate bracts ; raceme simple or very rarely (in two specimens) paniced, very laxly 6-15flowered, flowers usually ascending ; bracts ovate acuminate, much shorter than the pedicellate ovary ; sepals linear-oblong acute 1.1-1.3 cm. long ; petals oblong acute or obtuse, 1-1.2 cm. long ; labellum ovate-oblong in outline, about as long as the petals, 3lobed, lateral lobes semi-ovate acute, the middle lobe twice as long, obovate, rounded at the apex, conspicuously tuberculate-crested, spur cylindrical slightly incurved, three times shorter than the lip ; column oblong produced at base into a projecting foot.

Described from two living and many dried specimens. The branched inflorescence, which occurs in two specimens sent by Mr. Flanagan from Kei River Mouth, is very unusual in the genus.

## TAB. 16.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia æmula**, *Schlechter*, in *Engl. Bot. Jahrb.*, vol. xx. (1895), *Beibl. No.* 50, p. 26.—Herba erecta gracilis glabra ad 40 cm. alta; folia 3-4 fasciculata erecto-patentia linearia acuta nervosa, scapo paullo breviora; scapus vaginis 4-6 acuminatis imbricantibus vel subdistantibus vestitus; racemus laxe 6-12 florus, floribus in genere inter minores; bracteæ lanceolatæ acutæ, ovario pedicellato paullo breviores; sepala patentia late linearia acuta, 1·2-1·5 cm. longa; petala declinata oblongo-ovata acuta, sepalis subæquilonga; labellum petalis paullo brevius, circuitu ovatum, 3lobum, lateralibus brevibus acutis, intermedio duplo longiore oblongo rotundato tuberculato-cristato, basi in calcare brevi apice ventricosum productum; columna apoda, labello vix duplo brevior. (*Ex exempl. duobus vivis, pluribusque exsiccatis.*)

**Hab.:** **South-eastern Region**; CAPE COLONY: grassy hills, near Komgha, alt. 600 met., fl. Feb., *H. G. Flanagan*, 1117!.—NATAL: near Sevenfontein, alt. 1200 met., fl. Feb., *J. Wylie* (*J. M. Wood*, 5372!).—SWAZIELAND: near Embabaaan, alt. 1350 met., fl. Jan., *Bolus*, 12302.—TRANS-VAAL: Moodie's, near Barberton, alt. 600-900 met., fl. Dec., *W. Culver*, 14!; Botsabelo, near Middelburg, alt. 1500 met., fl. Dec., *R. Schlechter*, 4057!; near Johannesburg, alt. 1680 met., fl. Jan., *C. Mainwaring* (*Burt Davy*, 1044!).

**Plate 16.** Fig. 1, flower, side view; 2, ditto, front view; 3, 3, side sepals; 4, odd sepal; 5, 5, petals; 6, lip, flattened out; 7, lip and column, side view; 8, lip, front view; 9, column, front view; 10, ditto, side view.

An erect slender glabrous herb, up to 40 cm. high; leaves 3-4 fasciculate, erect-spreading, narrow linear, acute nerved, a little shorter than the scape, scape with 4-6 imbricating, or somewhat distant sheaths; raceme laxly 6-12 flowered; bracts lanceolate acute, somewhat shorter than the pedicellate ovary; flowers small in the genus; sepals spreading linear acute, 1·2-1·5 cm. long; petals

declinate, oblong-ovate acute, as long as the sepals; lip a little shorter than the petals, ovate in outline, 3lobed, lateral lobes short acute, middle one twice as long, oblong rotundate tuberculate-cristate, produced at base into a short spur ventricose at the apex; column without a projecting foot, scarcely half as long as the lip.

Described from two living specimens received from Mr. H. G. Flanagan, from which also the drawing was made, and several dried ones.



## TAB. 17.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆÆ.

Genus EULOPHIA.

**Eulophia platypetala**, *Lindley, in Hook. Comp. Bot. Mag.*, vol. ii., p. 202 (1836).—Herba erecta glabra ad 35 cm. alta; folia 5-6, per anthesin bene evoluta, erecto-patentia lineari-ensiformia acuminata, crebre nervosa, 7-25 cm. longa; scapus rectus, vel subflexuosus, vaginis 2-3 distantibus vestitus; racemus laxe 10-13 florus, bracteæ ovatæ acuminatæ ovario pedicellato multo breviores; sepala patentia oblonga acuta 1·8 cm. longa; petala declinata late elliptica sepalis paullo breviora; labellum circuitu late ovatum 3lobum petalis æquilongum, lobis lateralibus ovatis obtusis intermedio duplo longiore, obovata, retuso conspicue ramentaceo-cristato, calcare leviter incurvo apice bilobulato, 0·7 cm. longo; columna oblonga basi in pedem brevem porrectum producta, 0·9-1 cm. longa; ovarium cum pedicello 2·5-3 cm. longum. (*Ex exempll duobus vivis exsiccatisque.*)

*Hab*: **South-western Region**; CAPE COLONY: Riversdale division, Zoet Melks R., near Riversdale, fl. Nov., *Burchell*, 6611!; near Forest Hall, Plettenberg Bay, fl. Nov., *Miss Newdigate* (No. 6888 in my herb.).

**Plate 17.** Fig. 1, flower; 2, one of the sepals; 3, one of the petals; 4, lip, viewed from above; 5, lip and column, side view; 6, column, front view; 7, pollinarium.

An erect glabrous herb, up to 35 cm. high; leaves 5-6 well developed during the flowering period, erect-spreading, linear-ensiform closely nerved, 7-25 cm. long; scape straight or somewhat flexuose, with 2-3 distant sheaths; raceme laxly 10-13 flowered; bracts ovate acuminate much shorter than the pedicellate ovary; sepals spreading oblong acute 1·8 cm. long; petals declinate broadly elliptical, a little shorter than the sepals; lip broad ovate in outline, as long as the petals, 3lobed, lateral lobes ovate-obtuse,

intermediate twice as long, obovate, retuse, conspicuously crested, the tubercles multifid, the spur slightly incurved, bilobulate at the apex 0·7 cm. long ; column oblong, produced at base into a short projecting foot, 0·9-1 cm. long ; ovary with pedicel 2·5-3 cm. long.

Described, and the figure drawn, from living specimens received from Miss C. Newdigate, Forest Hall, Nov. 28, 1895. I think it probable that this is the same as *E lissochiloides* Lindl., which, however, was described after this.

## TAB. 18.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia hians**, *Sprengel, Syst. Veg.* iii. (1826), 720.—Herba erecta, 20-40 cm. alta; folia 4-5, erecto-patentia lineari-ensiformia rigidula, per anthesin, ut videtur, nondum bene evoluta, 6-15 cm. longa; scapus subflexuosus, vaginis 3, distantibus acutis membranaceis vestitus; racemus laxus, vel rarius, subdense 7-15-florus; bracteæ ovatæ acutæ, ovario pedicellato breviores; sepala subpatentia oblongo-lanceolata vel lanceolata acuta, 0·9-1·5 cm. longa; petala declinata, sæpe aut unum aut ambo columnæ margine postico adnata, ovato-oblonga vel obovata obtusa sepalis subæquilongia; labellum circuitu ovato-oblongum sepalis æquilongum 3lobum, lateralibus obtusis, intermedio circa duplo longiore, obovato, apice truncato, leviter emarginato undulato ramentaceo-tuberculato-cristato, calcare cylindrico, leviter incurvo, 0·5-0·7 cm. longo; columna apoda, 0·5-0·7 cm. longa; stipes brevissimus; ovarium cum pedicello 1·5-2·5 cm. longum. (*Ex exempl. multis vivis exsiccatisque*).—*Limodorum hians*, *Thunb., Prodr. Plant. Cap.* (1794), 3; *Flor. Cap.* (1823), 30; *E. clavicornis*, *Lindl., in Comp. Bot. Mag.* ii. (1836), 202; *E. emarginata*, *Lindl., ibid.*

**Hab.:** **South-western Region;** CAPE COLONY: between George and Mossel Bay, fl. Oct., *Burchell*, 6147!;—**South-eastern Region;** near Grahamstown, alt. 540-750 met., fl. Sept.-Oct., *E. E. Galpin*, 170!; near Kentani, alt. 600 met., fl. Sept., *Alice Pegler*, 781!; Egossa, fl. Aug., *T. R. Sim*, 2453!; near Kokstad, alt. 1500 met. fl. Oct., *W. Tyson*, 1602!—NATAL: near Ladismith, alt. 1260 met., fl. Sept., *R. Schlechter*, 3431!—TRANS-VAAL: near Barberton, alt. 1200-1500 met., fl. Sept., *Bolus*, 10675; *E. E. Galpin*, 550!; *Culver*, 52!; near Pretoria, *J. MacLea* (No. 5817 in my herb.); *Miss Leendertz*, 282!

**Plate 18.** Fig. 1, odd sepal; 2, 2, side sepals; 3, 3, petals; 4, lip; 5, column, front view; 6, ditto, side view; 7, lip, side view.

An erect herb, 20-40 cm. high; leaves 4-5, erect-spreading linear-ensiform rigid, apparently not well developed during the

flowering period, 6-15 cm. long; scape somewhat flexuous, with 3 distant acute membranous sheaths; raceme laxly, or more rarely, somewhat densely, 7-15 flowered; bracts ovate acute, shorter than the pedicellate ovary; sepals rather spreading oblong-lanceolate or lanceolate acute, 0.9-1.5 cm. long; petals declinate, often either one or both adnate by the posticous margin to the back of the column, ovate-oblong or obovate obtuse about as long as the sepals; labellum in outline ovate-oblong, as long as the sepals, 3lobed, the lateral lobes obtuse, the intermediate about twice as long, obovate, truncate at the apex, slightly emarginate undulate crested with branched tubercles, spur cylindrical, slightly incurved, 0.5-0.7 cm. long; column without a projecting foot, 0.5-0.7 cm. long; stipe very short; ovary with the pedicel 1.5-2.5 cm. long.

I have not seen the type of this species, but have had the advantage of seeing and examining several specimens from the Kew Herbarium, named by Messrs. N. E. Brown and R. A. Rolfe, of Kew, and one which had been compared by the former with Thunberg's specimen of *Limodorum hians* and with Lindley's *E. clavicornis*. This species grows sometimes in the company of *E. inæqualis Schlechter* from which it is distinguishable by its purple, not yellowish, colour, and the absence of any projecting foot to its column.

## TAB. 19.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA

**Eulophia Reichenbachiana**, *Bolus, in Journ. Linn. Soc., vol. xxv., p. 185 (1890).*—Herba erecta glabra, robusta ad 55 cm. alta; rhizoma magnum tuberosum; folia 3-4, per anthesin bene evoluta, erecta lineari-vel lanceolato-ensiformia, longe acuminata, nervis primariis subtus valde prominentibus, scapo longiora; scapus strictus, vel rarius subflexuosus, vaginis 3-4 rigidiusculis imbricantibus ad 15 cm. longis vestitus; racemus oblongus obtusus multiflorus, floribus confertis nutantibus, 6-15 cm. longus; bracteæ lineari-lanceolatæ setaceo-acuminatæ, ovario longiores; sepala declinata, lateralibus oblique ovatis acutis vel acuminatis, impari lanceolato-oblongo, acuminato, 1.2-1.5 cm. longa; petala oblique oblanceolata, nunc subobtusa, nunc acuta, sepalis breviora, 1-1.2 cm. longa; labellum ecalcaratum circuitu late obovatum brevissime unguiculatum sepalis paullo brevius, 3lobum lateralibus erectis rotundatis, intermedio apice subcochleariformi, inconspicue tuberculato-cristato, lateralibus duplo longiore latioreque; columna oblonga, apice attenuata subapiculata, basi in pedem porrectum producta; pollinia ovoidea; stipes brevissimus; ovarium cum pedicello 0.7-1.1 cm. longum. (*Ex exempll. plur. vivis exsiccatisque.*)—*Cymbidium Buchanani*, *Reichb. f. in "Flora," (1881), p. 329*; *E. Buchanani*, *Dur. & Schinz., in Consp. Flor. Afr., vol. v., p. 19 (1895), not of Bolus.*

**Hab: South-eastern Region;** CAPE COLONY: near Grahams-town, alt. 660 met., fl. Nov., *R. W. Read* (1281 in my herb.); Chumie Peak, near Stockenstrom, fl. Dec., *W. C. Scully*, 172!; near Kokstad, alt. 1500 met., fl. Dec., *W. Tyson*, 1085! in *Herb. Norm. Austr.-Afr.*, 548!—NATAL: *J. Sanderson* (in herb. *Wood* 1006!); Van Renen's Pass, alt. 1500-1800 met., fl. Dec., *Wood*, 5863!;—SWAZIELAND: Devil's Bridge, alt. 1200 —, 1350 met., fl. Dec.-Jan., *E. E. Galpin*, 723!—TRANS-VAAL: near Eland's Spruit-bergen, alt. 1950 met., fl. Dec., *R. Schlechter*, 4001!; near Belfast, alt. 1950 met., fl. Dec., *Bolus*, 12305.

**Plate 19.** Fig. 1, flower, side view; 2, ditto, front view; 3, 3, one of the side sepals; 4, one of the petals; 5, lip, flattened



out; 6, ditto, with column and ovary, side view; 7, column, front view; 8, ditto, side view; 9, pollinarium, front view; 10, ditto, side view; all variously magnified.

An erect glabrous robust herb, up to 55 cm. high; rhizome large tuberous; leaves 3-4, well developed during the flowering period, erect linear—or lanceolate-ensiform long-acuminate, the primary nerves very prominent on the lower surface, longer than the scape; scape straight or more rarely somewhat flexuous with 3-4 rather rigid imbricating sheaths; raceme oblong obtuse, with numerous crowded nodding flowers, 6-15 cm. long; bracts linear-lanceolate setaceous-acuminate, longer than the ovary; sepals declinate, the lateral obliquely ovate acute or acuminate, odd one lanceolate-oblong acuminate, 1.2-1.5 cm. long; petals obliquely oblanceolate, sometimes rather obtuse, sometimes acute, shorter than the sepals, 1-1.2 cm. long; lip spurless broadly obovate in outline, very shortly clawed, a little shorter than the sepals, 3lobed, the lateral erect rotundate, intermediate somewhat cochleariform at the apex, inconspicuously tuberculate-crested, twice as long and broad as the lateral lobes; column oblong, attenuate at the apex, somewhat apiculate, produced at base into a projecting foot; pollinia ovoid; stipe very short; ovary with the pedicel 0.7-1.1 cm. long.

Described from several living and dried specimens.

## TAB. 20.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia flaccida.** *Schlechter, in Engl. Bot. Jahrb. v., 20, Beibl. 50, p. 3 (1895).*—Herba gracilis erecta glabra, 30-35 cm. alta; folia 2-3, fasciculata erecto-patentia flaccida anguste linearia acuta vel acuminata nervosa, scapo longiora vel breviora; scapus flexuosus, vaginis 4, distantibus membranaceis acuminatis vestitus; racemus laxe 8-13florus; bracteæ lanceolatae acuminatae ovario pedicellato breviores; sepala patentia lanceolata vel oblonga acuta 0·7-0·8 cm. longa; petala ovato-vel elliptico-oblonga, sepalis paullo breviora; labellum circuitu oblongum vel obovatum, e basi fere ad apicem caruncula trifurcata ornatum, marginibus undulatum petalis æquilongum 3lobum, lateralibus erectis subtriangularibus acutis, intermedio subquadrato, apicem versus dilatato, truncato subexciso, calcare cylindrico, obtuso; columna subtetragona brevis; anthera apice emarginata; polliniis subglobosis. (*Ex exempll. plur. vivis et descriptione cl. Schlechteri*).

*Hab. : South-eastern Region; CAPE COLONY: near Komgha, alt. 600 met., fl. Jan., H. G. Flanagan, 1645 !—NATAL: "The Bluff," near Durban, alt. 60 met., fl. July, R. Schlechter, 2860.*

**Plate 20.** Fig. 1, flower, side view; 2, 2, side sepals; 3, odd sepal; 4, 5, petals; 6, lip; 7, column; 8, pollinarium.

An erect slender glabrous herb, 30-35 cm. high; leaves 2-3, fasciculate erect-spreading flaccid narrowly linear acute or acuminate longer or, sometimes, shorter than the scape; scape flexuous, clothed with 4 distant membranous acuminate sheaths; raceme laxly 8-13flowered; bracts lanceolate acuminate, shorter than the pedicellate ovary; sepals spreading lanceolate or oblong acute 0·7-0·8 cm. long; petals ovate- or elliptic-oblong, a little shorter than the sepals; lip oblong or obovate in outline, furnished with a trifurcated caruncle extending from the base almost to the apex, undulate, as long as the petals, 3lobed, the lateral erect, somewhat triangular acute, intermediate somewhat quadrate, dilated towards the apex, truncate emarginate, spur cylindrical

obtuse ; column somewhat tetragonous short ; anther emarginate at the apex ; pollinia subglobose.

Described from several living specimens received from Mr. H. G. Flanagan. I have also made use of Dr. Schlechter's description, but have not seen his type. He, however, saw Mr. Flanagan's specimens and named them *E. flaccida*. I am inclined to think that the plant I have figured as Tab. 11 of this volume and the present plant are closely allied forms of the same species, the latter having smaller flowers differently coloured and narrower leaves, but scarcely differing otherwise.

## TAB. 21.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia æqualis**, *Bolus*, in *Journ. Linn. Soc.*, vol. xxv., p. 184 (1890).—Herba erecta glabra 25-55 cm. alta; folia 6-8, patentia, per anthesin bene evoluta, ensiformia, acuta, equitantia, 10-25 cm. longa; scapus validus flexuosus, vaginis 3-4, distantibus membranaceis acutis, 3-8 cm. longis, vestitus; racemus sublate 8-14-florus, floribus adscendentibus; bracteæ magnæ ovato-oblongæ acutæ, ovario-pedicellato æquilongæ; sepala sub-patentia obovata, oblongo-ovata vel suborbicularia [intus colorata, 1-1·7 cm. longa; petala declinata sepalis simillima breviora rarius subæquilonga; labellum circuitu late ovatum, petalis paullo brevius, 3lobum; lateralibus erectis obtusis, intermedio oblongo apice rotundato convexo tuberculato-cristato, calcare conico; columna brevis tetragona apoda; ovarium cum pedicello 1·1-1·5 cm. longum. (*Ex exempl. 2 vivis pluribusque exsiccatis.*)—*Lissochilus æqualis*, *Lindl.*, in *Hook. Comp. Bot. Mag.*, vol. ii., p. 204 (1836).

**Hab:** **South-eastern Region**; CAPE COLONY: Zuurbergen, between Enon and Driefontein, alt. 600-900 met., fl. Nov., *Drège*; near Grahamstown, *MacOrwan*! (No. 1284 in my herb.); near Kei R. mouth, fl. Nov., *H. G. Flanagan*, 1299!—NATAL: Krantz Kloof, alt. 450 met., fl. Sept., *R. Schlechter*, 3200!;—TRANS-VAAL: near Barberton, alt. 900-1200 met., fl. Sept., *W. Culver*, 1!

**Plate 21.** Fig. 1, flower, front view, enlarged; 2, 2, sepals, slightly reduced; 3, 3, petals, ditto; 4, lip and column, side view, enlarged; 5, lip, front view, ditto; 6, column, front view, ditto; 7, pollinarium, ditto; 8, flower, oblique view, ditto; 9, one of the sepals from another plant, natural size; 10, one of the petals, ditto; 11, lip flattened out, ditto.

An erect glabrous herb, 25-55 cm. high; leaves 6-8, spreading, equitant, well developed during the flowering period, ensiform acute, 10-25 cm. long; scape stout flexuous, with 3-4 distant membranous acute sheaths, 3-8 cm. long; raceme somewhat laxly

8-14flowered, flowers ascending ; bracts large ovate-oblong acute, as long as the pedicellate ovary ; sepals somewhat spreading obovate, oblong-ovate or somewhat orbicular, coloured within, 1-1.7 cm. long ; petals declinate very similar in shape to the sepals, shorter or more rarely as long ; lip broadly ovate in outline, a little shorter than the petals, lateral lobes erect obtuse, intermediate oblong rotundate at the apex, convex tuberculate-crested, spur obconic ; column short tetragonous, without a projecting foot ; ovary with the pedicel 1.1-1.5 cm. long.

Described from several dried and two living specimens, sent by Mr. H. G. Flanagan, from which the drawing was made.



## TAB. 22.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia tuberculata**, *Bolus in Journ. Linn. Soc., vol. xxv., p. 184 (1890).*—Herba erecta glabra, 25-35 cm. alta; folia 2-3 erecto-patentia demum recurva, per anthesin ut videtur nondum bene evoluta, lanceolato-ensiformia, rigidula, crebre nervosa, 4-12 cm. longa, 1-1.5 cm. lata; scapus subflexuosus, vaginis 2-3 distantibus brevibus acutis vestitus; racemus laxe 6-15-florus, floribus adscendentibus; bracteæ lanceolatæ acuminatæ, ovario pedicellato multo breviores; sepala patentia demum reflexa oblonga acuta, 0.8 cm. longa; petala late patentia late ovata obtusa 0.9-1 cm. longa; labellum circuitu ovatum, juxta basin levissime saccatum, tuberculis duobus ore sacci, 3-lobum, lateralibus erectis rotundatis, per totam fere longitudinem columnæ adnatis, intermedio ovato acuto vel obtuso, arcuato-incurvo, marginibus deflexis, tuberculato-cristato, tuberculis 3-5 seriebus incrassatis; columna tetragona apoda. (*Ex exempll. duobus vivis pluribusque exsiccatis*).—*Lissochilus platypetalus*, *Lindl. in Hook Comp. Bot. Mag., vol. ii., p. 204 (1836.)*

**Hab.:** **South-eastern Region;** CAPE COLONY: Uitenhage Div., dry hills near the Zwartkops R., fl. Nov., *C. Zeyher*, 1120!; near Grahamstown, alt. 600 met., fl. Nov., *MacOwan*, 1046!; Blue Stone Quarry, near King William's Town, fl. Dec., *T. R. Sim*, 2!—TRANS-VAAL: near Pretoria, alt. 1350 meters, fl. Sept., *J. H. McLea* (in my herb. No. 5819 *partly*).

**Plate 22.** Fig. 1, flower, front view; 2, lip and column, oblique view; 3, one of the petals; 4, one of the sepals; 5, column; 6, pollinarium, back view; 7, ditto, side view; 8, lip viewed from above; 9, lip, with column, side view; 10, transverse section through the anterior part of the middle lobe of the lip.

An erect glabrous herb, 25-35 cm. high; leaves 2-3, erect-spreading, finally recurved, apparently not well developed during the flowering period, lanceolate-ensiform, rigid, closely nerved, 4-12 cm. long, 1-1.5 cm. wide; scape somewhat flexuous, with

2-3 distant short acute sheaths; raceme laxly 6-15flowered, flowers ascending; bracts lanceolate acuminate, much shorter than the pedicellate ovary; sepals spreading, finally reflexed oblong acute, 0·8 cm. long; petals wide-spreading, broadly ovate obtuse, 0·9-1 cm. long; lip ovate in outline, near the base, with a very shallow sac at the mouth of which are two tubercles, 3lobed, lateral lobes erect, adnate to the column for almost their whole length, the middle lobe ovate acute or obtuse, arcuate-incurved, the margins deflexed, tuberculate-cristate, tubercles in 3-5 rows, very much thickened; column tetragonous, without a projecting foot.

Described from two living, and several dried specimens. The drawing was made from plants received from Grahamstown.

## TAB. 23.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Buchanani**, *Bolus*, in *Journ. Linn. Soc.*, vol. xxv., p. 185 (1890), *not of Rolfe* in *Flor. Trop. Afr.*, vol. vii., p. 64 (1898).—Herba erecta glabra robusta ad 1·5 met. alta; folia 6, per anthesin bene evoluta, erecta equitantia lanceolato-ensiformia acuta, e medio in petiolum longum vaginatum deorsum attenuata, interdum subplicata crassiuscula nervosa, ad 95 cm. longa, 2-6 cm. lata; scapus validissimus strictus, vaginis 4-5 distantibus appressis foliaceis acutis vestitus; racemus laxe 16-20florus, oblongus obtusus 15-30 cm. longus; bracteæ oblongo-lanceolatæ acutæ ovario pedicellato multo breviores; sepala erecto-patentia vel subreflexa spathulato-oblonga obtusa petaloidea, 2-2·3 cm. longa; petala declinata elliptico-oblonga obtusa, sepalis æquilonga, læte lutea; labellum circuitu oblongo-ovatum valde convexum, marginibus undulatis, tuberculato-cristatum, petalis parum longius, 3lobum lateralibus erectis, intermedio subquadrato æquilongo, marginibus deflexis, calcare conico obtuso 0·5-0·6 cm. longo; columna oblonga, labello duplo brevior, basi in pedem porrectum producta; pollinia subglobosa in stipite lato affixa; operculum apice argute bilobum, lobis rubro-coloratis. (*Ex exemplari unico vivo pluribusque exsiccatis.*)—*Lissochilus Buchanani*, *Reichenbach f. in Otia Bot. Hamb.* (1878), p. 64.

**Hab : South-eastern Region ;** CAPE COLONY : Near St. John's River mouth, in marshy places on the west bank, alt. about 20 met., fl. Feb., *H. G. Flanagan*, 2555! same station, fl. Dec., *E. E. Galpin*, 3414!—NATAL : swamp near Inanda, alt. 570 met., fl. Jan., *J. Medley Wood*, 845!—ZULULAND : fl. Dec., *W. J. Haygarth*, in herb. *Wood*, 7547!—RHODESIA, Morgenster Mt., near Victoria, fl. Jan., *Miss A. M. Krige* (No. 10715 in my herb.).

**Plate 23.** Fig. 1, lip and column, oblique view; 2, column, ditto; 3, operculum; 4, pollinarium.

An erect glabrous robust herb, up to 1·5 met. high; leaves 6, well developed during the flowering period, erect equitant lanceolate-ensiform acute, from the middle attenuated downwards into

a long sheathing petiole, sometimes somewhat plicate, rather thick, nerved, up to 95 cm. long, 2-6 cm. wide; scape very stout straight clothed with 4-5 distant appressed foliaceous acute sheaths; raceme laxly 16-20 flowered, oblong obtuse, 15-30 cm. long; bracts oblong-lanceolate acute, much shorter than the pedicellate ovary; sepals erect-spreading or somewhat reflexed, spathulate-oblong obtuse petaloid, 2-2.3 cm. long; petals declinate elliptic-oblong obtuse, as long as the sepals, clear yellow; labellum oblong-ovate in outline, convex, margins undulate, tuberculate-crested, a little longer than the petals, 3lobed, the lateral erect, intermediate as long, somewhat quadrate, the margins deflexed, spur conical obtuse, 0.5-0.6 cm. long; column oblong, half as long as the lip, produced at base into a projecting foot; pollinia subglobose, affixed to a broad caudicle; operculum sharply bilobed at the apex, the lobes coloured red.

Described from several dried specimens and one living one collected by Mr. H. G. Flanagan, from which the drawing was made.

## TAB. 24.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Zeyheri**, *Hook f. in Bot. Mag. t.* 7330 (1893).—Herba erecta glabra, 30-40 cm. alta; folia 2-3, fasciculata erecta, per anthesin bene evoluta, linearia vel lanceolata acuminata rigida subplicata nervis primariis subtus prominentibus, scapo nunc breviora nunc longiora; scapus strictus, vaginis 3-4 imbricantibus vel subdistantibus vestitus; racemus subabbreviatus subcorymbosus, ad 15 fl.; bracteæ lineari-lanceolatæ, ovario pedicellato longiores; sepala cum petalis patentia oblongo-elliptica acuminata 3-3.5 cm. longa; petala conformia paullo breviora; labellum circuitu ovatum 3lobum, lobis lateralibus erectis rotundatis, intermedio triplo longiore obovato tuberculato-cristato, tuberculis setaceis tomentellis, basi in calcar breve cylindrico productum; columna oblonga, fronte excavata, basi in pedem porrectum productum; ovaria cum pedicello, 1.2-2.2 cm. longa. (*Ex exempll. unico vivo pluribusque exsiccatis*).—*E. bicolor*, *Reichb. f. & Sonder ex Reichenb. f. in "Flora," vol. xlviii.* (1865), *p.* 186 *partim* (*non Blume*).

**Hab. : South-eastern Region ;** CAPE COLONY : Damp places on the road between Maclear and Umtata near the Chwenka R., Tembuland., alt., 1110 met., fl. Jan., *Bolus*, 8736; near Kokstad; GRIQUALAND EAST, alt., 750-1500 met., fl. Jan., W. Tyson, 1591!—TRANS-VAAL : near Lydenburg, alt. 1440 met., fl. Dec., *R. Schlechter* 3940!; near Heidelberg; fl. Dec., *Miss Leendertz*, 1038!; Elands' Fontein, near Johannesburg, alt. 1650 met., fl. Nov., *D. F. Gilfillan* (1428! in herb. *Galpin*).

**Plate 24.** Fig. 1, side sepal; 2, odd sepal; 3, one of the petals; 4, lip; 5, column; 6, pollinarium.

An erect glabrous herb, 30-40 cm. high; leaves 2-3, fasciculate erect, well developed during the flowering period, linear or lanceolate acuminate rigid subplicate, the primary nerves prominent beneath, longer or shorter than the scape; scape straight clothed with 3-4 imbricating or somewhat distant bracts; raceme some-

what abbreviated and corymbose, up to 15 flowered ; bracts linear-lanceolate, longer than the pedicellate ovary ; sepals and petals spreading oblong-elliptical acuminate 3-3.5 cm. long, petals a little shorter ; lip ovate in outline, crimson at the base and on the side lobes, 3lobed, lateral lobes erect rounded, intermediate three times as long, obovate crested with setaceous tubercles, produced at base into a short cylindrical spur ; ovary with the pedicel 1-2.2 cm. long.

Described from several dried specimens and a living one which I collected in Tembuland and from which the drawing was made.



## TAB. 25.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Capensis**, *Bolus in Journ. Linn. Soc.*, vol. xix., p. 336 (1882).—Herba erecta glabra 7-60 cm., sæpius 20 cm. alta; folia 1-2, erecta lineari-ensiformia nervosa scapo nunc longiora, nunc breviora; scapus strictus vel subflexuosus, vaginis 3-4 distantibus vel imbricantibus vestitus; racemus abbreviatus 3-14-florus, 1-3·5 cm. longus; bracteæ lineari-lanceolatæ acuminatissimæ ovario pedicellato sæpius longiores; sepala declinata oblongo-lanceolata acuta, 0·8-1 cm. longa; petala oblonga sepalis subæquilongia sed angustiora; labellum ecalcaratum, circuitu obovatum, sepalis æquilongum, 3-lobum, lobis lateralibus erectis rotundatis intermedio majore tuberculis ramentaceis cristato, truncato leviter undulato totum concavum et quodammoda cochleariforme; columna oblonga, acuta labello duplo brevior, basi in pedem porrectum breviter productum. (*Ex exempll. plur. vivis exsiccatisque.*)—*Satyrium capense*, Linn., *Pl. Rar. Afr.* p. 27 (1760); *S. aculeatum*, Linn. f. *Suppl.* (1781), p. 402; *S. pedicellatum*, Linn. f. *ibid.*; *Serapias aculeata*, Thunb. *Prodr.* (1794), p. 3; *S. pedicellata*, Thunb. *Prodr.*, *ibid.*; *Cymbidium aculeatum*, Swt. in *Schrad. Journ.* 2 (1799), p. 225; *C. pedicellatum*, Swt. *ibid.*, p. 224; *Eulophia aculeata*, Spreng. *Syst. Veg.* 3 (1826), p. 720; *Cyrtopera pedicellata*, Lindl., *Gen. & Sp. Orch.* (1833), p. 190; *Cymbidium plicatum*, in *Comp. Bot. Mag.* 2 (1836), p. 203; and Hook. *Icon. Plant.*, t. 104; *Eulophia odontoglossa*, Reichb., f. in “*Linnæa*,” vol. xix. (1847), p. 373; and vol. xx., p. 684; (ex Reichb. f. in “*Flora*” (1883), p. 463); *E. plicata*, Bolus in *Journ. Linn. Soc.*, vol. xix. (1882), p. 336.

**Hab.:** **South-western Region;** CAPE COLONY: frequent on mts., hills and flats near Cape Town, fl. Dec.-Feb., many collectors.—**South-eastern Region;** Uitenhage, Zeyher, 300!; near Grahamstown, Galpin, 3087!; Engcobo Mt., alt. 1350 met., Bolus, 10294; Frankfort Hill, Sim, 9!—TRANS-VAAL: near Barberton, alt. 1200 met., fl. March, W. Culver, 86!

**Plate 25.** Fig. 1, flower, side view; 2, lip and column, ditto; 3, odd sepal; 4, 4, side sepals; 5, 5, petals; 6, lip, flattened

out ; 7, ditto, side view ; 8, column, oblique view ; 9, 10, pollinarium ; 11, column, front view.

An erect glabrous herb, 7-60 cm., usually 20 cm. high ; leaves 1-2, erect linear-ensiform nerved sometimes longer, sometimes shorter than the scape ; scape straight or somewhat flexuous, clothed with 3-4 distant or imbricating sheaths ; raceme abbreviated 3-14-flowered, 1-3.5 cm. long ; bracts linear-lanceolate very acuminate, usually longer than the pedicellate ovary ; sepals declinate oblong-lanceolate acute, 0.8-1 cm. long ; petals oblong, about as long as the sepals, but narrower ; lip spurless, obovata in outline, about as long as the sepals, 3lobed, the lateral erect rounded, intermediate larger crested with branched tubercles, truncate, slightly undulate, the whole concave and somewhat cochleariform ; column oblong acute, half as long as the lip, shortly produced at base into a projecting foot.

Described from several living and dried specimens. This is nearly allied to *E. Reichenbachiana mihi* and to *E. Oliveriana Reichb. f.* Flowers entirely white.

## TAB. 26.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia ensata**, *Lindl., in Bot. Reg.* (1828), *t* 1147.—Herba erecta glabra 40-60 cm. alta; rhizoma magnum tuberosum; folia 3-4 fasciculata erecta linearia acuminata, per anthesin bene evoluta, scapo sæpissime longiora, nervis subtus prominentibus; scapus subflexuosus, vaginis 4-6 imbricantibus vel subdistantibus paleaceis acuminatis vestitus; racemus abbreviatus, specie subcorymbosus, 11-20florus; bracteæ lineari-lanceolatæ, sæpissime ovarium pedicellatum excedentes; sepala patentia oblique-ovata acuminata, basi oblique cordata, 1·8-2·4 cm. longa; petala subpatentia oblonga acuta, sepalis paullo breviores; labellum circuitu ovale concolor, petalis æquilongum 3lobum, lateralibus erectis apice rotundatis, intermedio fere 3 plo longiore obovato-oblongo subtruncato, tuberculis setaceis cristato, calcare cylindrico tenui recto, 0·6-0·7 cm. longo; columna oblonga, supra medium dilatata, acuta, basi in pedem porrectum producta, 0·6-0·9 cm. longa; operculum apice apiculatum; ovarium cum pedicello 1·5-2·5 cm. longum. (*Ex exemplari unico vivo pluribus exsiccatisque.*)

**Hab.:** **South-eastern Region;** CAPE COLONY: district of Albany, near the Kareiga R., alt. 150 met., fl. Jan., *Zeyher*, 2!; near Kei R. mouth, alt. 60 met., fl. Jan., *H. G. Flanagan*, 1030!; Egossa Forest, fl. Jan., alt. 300 met., *W. Tyson*, 2842!—SWAZIELAND: near Bremersdorp, alt., 690 met., fl. Jan., *Bolus*, 12304.

**Plate 26.** Fig. 1, flower, side view; 2, lip and column, side view; 3, column, side view; 4, ditto, front view; 5, pollinarium.

An erect glabrous herb, 40-60 cm. high; rhizome large tuberous; leaves 3-4, fasciculate erect linear acuminate, well developed during the flowering period, usually longer than the scape, the nerves prominent below; scape somewhat flexuous; clothed with 4-6 imbricating or somewhat distant paleaceous acuminato sheaths; raceme abbreviated, somewhat corymbose in

appearance, 11-20 flowered ; bracts linear-lanceolate, usually longer than the pedicellate ovary ; sepals spreading obliquely ovate acuminate obliquely cordate at the base, 1.8-2.4 cm. long ; petals somewhat spreading oblong acute, a little shorter than the sepals ; lip oval in outline concolorous, as long as the petals, 3lobed, the lateral lobes erect rounded at the apex, the intermediate almost three times longer obovate-oblong, somewhat truncate, crested with setaceous tubercles, spur cylindrical slender straight, 0.6-0.7 cm. long ; column oblong, widened above the middle, acute, produced at base into a projecting foot, 0.6-0.9 cm. long ; operculum apiculate at the apex ; ovary with the pedicel 1.5-2.5 cm. long.

Described from several dried specimens and a living one received from Mr. H. G. Flanagan, from which the drawing was made.

## TAB. 27.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆ.

Genus EULOPHIA.

**Eulophia Pillansii**, *n. sp.*.—Herba erecta glabra ad 25 cm. alta; folia 6, erecto-patentia demum recurva equitantia per anthesin nondum evoluta, ensiformia acuminata, 9-15 cm. longa, 1-1.2 cm. lata; scapus sub-flexuosus vagina unica bractei-formi præditus; racemus laxe 10-11florus floribus patentibus; bracteæ oblongo-lanceolatæ acutæ ovario pedicellato duplo breviores; sepala declinata apicem versus patenti-recurva oblonga acuta 1.6 cm. longa; petala conformia 1.2 cm. longa; labellum circuitu ovatum acutum conspicue 3lamellatum marginibus undulatis, sepalis æquilongum, 3lobum lateralibus erectis semi-orbicularibus, intermedio ovato-lanceolata acuto toto labello triplo brevior, calcare infundibulari-cylindrico obtuso incurvo 0.5-0.7 cm. longo; columna oblonga basi in pedem porrectum producta, apice apiculato. (*Ex exemplari vivo unico.*)

**Hab: Karroo Region**; CAPE COLONY: near Cookhouse, alt about 490 met., fl. in garden Jan., leafing Feb., coll *N. S. Pillans* No. 10479 in my herb.

**Plate 27.** Fig. 1, flower, front view; 2, lip, oblique view 3, ditto, side view; 4, operculum; 5, column, side view; 6, ditto, front view; 7, pollinarium; 8, transverse section of lower part of lip (hypochilium), to shew the arrangement of the lamellæ; 9, ditto, through the upper part of the lip (epichilium).

An erect glabrous herb 25 cm. alta; leaves 6, erect-spreading finally recurved, equitant, not developed during the flowering period, ensiform, acuminate, 9-15 cm. long, 1-1.2 cm. broad; scape somewhat flexuose, with one bract-like sheath; raceme laxly 10-11flowered, flowers spreading; bracts oblong-lanceolate acute, half as long as the pedicellate ovary; sepals declinate towards the apex spreading-recurved, oblong-acute, 1.6 cm. long; petals similar 1.2 cm. long; lip in outline ovate-acute, conspicuously ridged with 3 erect plates, margins undulate, as long as the sepals, 3lobed, the lateral lobes erect, semi orbicular, the intermediate

ovate-lanceolate acute, one-third the length of the whole lip, spur funnel shaped—cylindrical obtuse incurved, 0·5-0·7 cm. long; column oblong, produced at base into a projecting foot, apiculate at the apex.

This species is interesting owing to the fact of its being the solitary instance, so far as I know, of a *Eulophia* growing in that dry part of the Colony known as the Karroo. It was found by Mr. N. S. Pillans, who has very kindly helped me in my work in many ways, and whose name I am glad to associate with what appears to me to be a very distinct species.



## TAB. 28.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus CYNORCHIS.

**Cynorchis compacta**, *Reichenbach, f* in "*Flora*," 1888, p. 149.—Herba terrestris erecta glabra, palmaris vel spithamæa; tubera ovoidea vel fusiformia 1·7-5 cm. longa, caulis validus brevis monophyllus basi vaginis laxis tectus; folia erecto-patentia ovata acuta basi scapum laxè vaginantia 4-9 cm. longa; racemus laxè 3-10florus vel in speciminibus cultis multifloris, floribus albis labelli disco roseo-punctatis; bracteæ lanceolatæ acuminatæ ovario pedicellato multo brevioræ; sepala erecto-patentia obovata subacuta 0·4-0·5 cm. longa; petala erecta oblique ovata obtusa, 0·4 cm. longa; labellum circuitu late obovatum 3lobum 0·8-1 cm. longum, lobis obovatis obtusissimis lamellis binis minimis obscure cristatum, basi in calcare cylindricum incurvum 0·5 cm. longum productum. (*Ex icone a beato Sandersoni delineata.*)

*Hab.*: **South-eastern Region**; NATAL: without locality, *J. Sanderson!* on rocks near Emberton, alt. 600 met., fl. Aug. *J. M. Wood*, 5765!

**Plate 28.** Fig. 1, odd sepal; 2, 2, side sepals; 3, 3, petals; 4, lip and column; 5, ditto, shewing spur; 6, column; 7, column, with stigma—all variously magnified.

A terrestrial erect glabrous herb, about a span high; tubers ovoid or fusiform, 1·7-5 cm. long; stem stout short, bearing one leaf, at the base covered with loose sheaths; leaves erect-spreading, ovate acute, at the base loosely sheathing the scape, 4-9 cm. long; raceme laxly 3-10flowered, or in cultivated specimens with many flowers, flowers white with reddish spots on the disc of the lip; bracts lanceolate acuminate, much shorter than the pedicellate ovary; sepals erect-spreading obovate subacute, 0·4-0·5 cm. long; petals erect obliquely ovate obtuse, 0·4 cm. long; lip in outline broadly obovate 3lobed, 0·8-1 cm. long, lobes obovate very obtuse, obscurely crested with two very small lamellæ, produced at base into a cylindrical incurved spur 0·5 cm. long.

Described from a drawing made by the late Mr. J. Sanderson



## TAB. 29.

Tribe VANDEÆ.

Sub-tribe EULOPHIÆÆ.

Genus ANSELLIA.

**Ansellia Africana**, *Lindley, Bot. Reg.* 1844, *sub. t.* 12, *et* 1845, *t.* 30.—Herba epiphytica glabra, 30-70 cm. alta; caulis erectus elongatus, vaginis foliorum delapsorum vestitus, apice foliatus, 20-40 cm. longus; folia erecto-patentia equitantia, basi caulem vaginantia articulataque, ligulata acuta rigida subcoriacea, nervis primariis 3-5, subtus valde prominentibus, 26-30 cm. longa; panicula terminalis pedunculata laxe multiflora floribus adscendentibus; bracteæ ovatæ membranaceæ minutæ; sepala cum petalis patentia oblonga obtusa vel subacuta, 1·7-2·1 cm. longa; petala sepalis conformia sed paullo latiora brevioraque; labellum circuitu orbicularis 2-3 lamellatum, petalis æquilongum, 3lobum, lateralibus erectis ovatis obtusis, intermedio obovato obtusissimo subrecurvo; columna oblonga acuta, basi in pedem porrectum producta; operculum 3lobulata; pollinia sphæroidea, stipite brevissimo glandulæ latæ affixa; ovarium cum pedicello 2-3·5 cm. longum. (*Ex exemplari unico culto vivo pluribusque exsiccatis.*)—*A. gigantea*, *Reichb. f. in Linnæa*, vol. xx., p. 673.

*Hab*: NATAL: *Mrs. K. Saunders!* (No. 6060 in my herb.)—TRANS-VAAL: near Barberton, alt. 540 met., fl. Aug.-Sept., *E. E. Galpin*, 1004!; Avoca, alt. 600 met., fl. Aug., *W. Culver*, 55!—PORTUGUESE S.E. AFRICA: near Lourenço Marques, fl. Aug., *Bolus*, 9786. Very common.

**Plate 29.** Sketch of the whole plant reduced in size by about 4 diameters. Fig. 1, flower, side view; 2, ditto, front view—natural size; 3, lip and column, side view; 4, lip, viewed from above; 5, column, front view; 6, do., side view; 7, pollinarium; 8, operculum—variously magnified.

An epiphytic glabrous herb, 30-70 cm. high; stem erect elongate, clothed with the sheaths of fallen leaves, leafy at the apex, 20-40 cm. long; leaves erect-spreading equitant, sheathing the stem at the base and articulate, ligulate acute rigid rather coriaceous, primary nerves 3-5, strongly prominent below, 26-30

cm. long; panicle terminal pedunculate laxly many-flowered, flowers ascending; bracts ovate membranaceous minute; sepals with the petals spreading, oblong obtuse or sub-acute, 1·7-2·1 cm. long; petals like the sepals but a little broader and shorter; lip orbicular in outline, 2-3lamellate, as long as the petals; 3lobed, lateral erect ovate obtuse, intermediate obovate very obtuse, somewhat recurved; column oblong acute, produced at base into a projecting foot; operculum 3lobulate; pollinia spheroid, affixed by a very short stipe to the broad gland; ovary with the pedicel 2-3·5 cm. long.

Described from one living specimen which flowered in the Botanic Gardens, Cape Town, and several dried ones. The markings on the perianth are very variable—being present in a greater or less degree, and sometimes, as in the case of the plant drawn, being quite absent.

## TAB. 30.

Tribe VANDEÆ.

Sub-tribe CYMBIDIEÆ.

Genus POLYSTACHYA.

**Polystachya pubescens**, *Reichb. f. in Walp. Ann.*, vol. vi., p. 643.—Herba epiphytica, 10-20 cm. alta, pseudobulbis pluribus subovatis vaginatis, 2-3 cm. longis; folia bina erecto-patentia, lineari-oblonga, obtusissima, glaberrima 7-12 cm. longa, 1-2 cm. lata; pedunculus terminalis pubescens, folia æquans vel excedens, racemo simplice 8-15florus; bracteæ late ovatæ cuspidatæ, glabrescentes 0·4-0·7 cm. longæ; perianthium explanatum, sepalis concavis, lateralibus oblongo-ovatis acutis, 0·8-1·1 cm. longis, impari paullo brevioribus; petala plana obovata obtusa, 0·7-0·9 cm. longa; labellum concavum subrhomboideum supra medium 3lobum, lobis ovatis terminali majore, pagina superiore hispida, 0·6-0·7 cm. longum, 0·5-0·6 cm. latum; columna abbreviata, stigmatibus concavis, margine 3tuberculato; pollinia 4, per paria connata. (*Ex exempl. plur. vivis exsiccatisque.*) *Epiphora pubescens*, *Lindl. in Comp. Bot. Mag.*, vol. ii., p. 201; *P. Lindleyana*, *Harv. in Thes. Cap.*, vol. ii., p. 50, t. 178.

**Hab. : South-eastern Region ;** CAPE COLONY: Grahamstown, Stone's Hill Range, on trees and rocks, alt., 550-760 met., fl. Nov.-Dec., *E. E. Galpin*, 298! near Kentani, alt. 370 met., fl. Nov., *Alice Pegler*, 619!; NATAL: Town Bush Valley, near Pietermaritzburg, alt. 854-914 met., fl. Nov., *R. W. Adlam*, 4! Deepdene, Richmond, alt. 914 met., fl. Nov., *J. Sanderson*, 891!

**Plate 30.** Fig. 1, one of the side sepals; 2, odd sepal; 3, one of the petals; 4, lip and column, side view; 5, ditto, front view; 6, anther shewing the pollinarium in situ; 7, pollinarium—all variously magnified.

An epiphytic herb, 10-20 cm. high, with several subovate vaginate pseudobulbs, 2-3 cm. long; leaves 2 nate erect-spreading linear-oblong very obtuse glabrous, 7-12 cm. long, 1·2 cm. broad; peduncle terminal pubescent, equalling or exceeding the leaves, raceme simple 8-15flowered; bracts broadly ovate cuspidate glabrescent, 0·4-0·7 cm. long; perianth spread out; sepals concave,

the lateral oblong-ovate acute, 0·8-1·1 cm. long, odd one a little shorter ; petals flat obovate obtuse, 0·7-0·9 cm. long ; labellum concave somewhat rhomboidal 3lobed above the middle, lobes ovate, the terminal larger, hispid on the upper surface, 0·6-0·7 cm. long, 0·5-0·6 cm. broad ; column abbreviated, stigma concave with 3 tubercles on the margin ; pollinia 4, connate in pairs.

Described from several living and dried specimens.



## TAB. 31.

Tribe VANDEÆ.

Sub-tribe CYMBIDIÆ.

Genus POLYSTACHYA.

**Polystachya Sandersonii**, *Harvey, in Thesaurus Capensis*, vol. ii. (1863), p. 49, tab. 177.—Herba epiphytica, 10-13 cm. alta; pseudo-bulbi plures, ovati, apice angustati, membranaceo-vaginati, 1·5-2 cm. longi; folia bina, rarissime 3na, erecto-patentia, basi articulata, late linearia vel oblonga obtusa vel subacuta, 4-10 cm. longa; bracteæ ovatæ cuspidatæ cum scapo pedicellisque pubescentes, ovario pedicellato breviores; scapus terminalis simplex vel rarius paniculatus sublaxe 5-13florus; sepala patentia, extus pubescentia, lateralibus late ovatis acuminatis, pedi columnæ producto adnatis, 0·9 cm. longis, impari oblongo acuminato paullo brevior; petala declinata lineari-spathulata 0·7 cm. longa; labellum circuitu ovatum, petalis æquilongum 3lobum, lateralibus erectis rotundatis, intermedio majore ovato arcuato-recurvo superficie verrucoso; columna brevis basi longe producta; pollinia 4, per paria connata. (*Ex exemplari unico vivo pluribusque exsiccatis.*)

**Hab:** **South-eastern Region**; CAPE COLONY: near Komgha, fl. Nov., *H. G. Flanagan!*; near Kentani, fl. Nov., *Alice Pegler* No. 203!;—NATAL: Attercliffe, alt. 180 met., *J. Sanderson*, N. 134; Etshowe, *R. Maxwell!*

**Plate 31.** Fig. 1, 1, side sepals; 2, odd sepals; 3, 3, petals; 4, flower, front view; 5, ditto, the sepals removed; 6, lip and column, oblique view; 7, column; 8, pollinarium—all variously magnified.

An epiphytic herb, 10-13 cm. high; pseudo-bulbs several, ovate, narrowed at the apex, with membranaceous sheaths, 1·5-2 cm. long; leaves 2 nate, very rarely 3 nate, erect-spreading, articulate at base, broadly linear or oblong obtuse or rather acute, 4-10 cm. long; bracts ovate cuspidate, with the scape and pedicels pubescent, shorter than the pedicellate ovary; scape terminal simple or more rarely paniculate, somewhat laxly 5-13flowered; sepals spreading pubescent on the outer surface, lateral broadly ovate acuminate, adnate to the produced foot of the column, 0·9 cm.

long, odd, oblong acuminate, a little shorter; petals declinate linear-spathulate, 0·7 cm. long; lip ovate in outline, as long as the petals, 3lobed, lateral erect rotundate, intermediate larger, ovate arcuate-recurved warted on the surface; column short produced at base; pollinia 4, connate in pairs.

Described from one living specimen and several dried ones.

## TAB. 32.

Tribe VANDEÆ.

Sub-tribe CYMBIDIEÆ.

Genus POLYSTACHYA.

**Polystachya Ottoniana**, *Reichenbach, fil. in Hamburg Gartenzeitung* vol. xi., p. 249 (1859).—Herba epiphytica, 5-15 cm. alta; pseudobulbi plures ovati, apice attenuati, vaginati, 1·2-2·5 cm. longi; folia bina, erecta, basi articulata, ligulata, obtusa, sæpe bilobulata, 3-13 cm. longa; scapus erectus gracilis, cum pedicellis pubescens, laxe 2-3florus; bracteæ minutæ; sepalum impar lanceolato-oblongum, lateralibus ovato-oblongis acutis declinatis pedi columnæ producto adnatis, 1·3 cm. longis; petala oblanceolata acuta 1·1 cm. longa; labellum circuitu ovatum acutum vel acuminatum, petalis æquilongum, 3lobum, lobis lateralibus erectis subacutis intermedio oblongo apice recurvo subacuto, vel acuminato columna oblonga basi angustata, in pedem porrectum producta; pollinia 4, per paria connata. (*Ex exempll. plur. vivis exsiccatisque.*) *P. capensis* Sond., in *Harv. Thes. Cap.* ii. (1863), p. 51, t. 179.

**Hab. : South-eastern Region ;** CAPE COLONY: near Grahams-town, fl. Dec., *MacOwan*, 1526! same station, fl. Nov., *C. A. Pym*!; Transkei, alt. 1200-1360 met., fl. September, *R. Baur*, 238!; near Kentani, alt. 310 met., fl. Nov., *Alice Pegler*, 617! near Komgha, fl. Nov., *H. G. Flanagan*!; NATAL: *J. Sanderson*!; TRANS-VAAL: near Barberton, alt., 1060-1330 met., fl. Nov., *E. E. Galpin*, 671!; near Haenertsburg, fl. Oct., *J. Burtl. Davy*! in *Trans. Col. Herb.*, 3026.

**Plate 32.** I., three plants of the yellow-flowered form. II., flower and dissections made from the white and pink-flowered form. Fig. 1, flower, oblique view; 2, ditto, front view; 3, one of the petals; 4, lip and column; 5, lip, posterior view; 6, column, front view; 7, anther, shewing the pollinarium in situ; 8, pollinarium.

An epiphytic herb, 5-15 cm. high; pseudobulbs several, ovate, attenuate at the apex; vaginate, 1·2-2·5 cm. long; leaves 2 nate erect, articulate at the base, ligulate obtuse, often bilobulate, 3-13 cm.

long; scape erect slender, with the pedicels pubescent, laxly 2-3flowered; bracts minute; odd sepal lanceolate-oblong, the lateral ovate-oblong acute declinate, attached to the produced foot of the column, 1.3 cm. long; petals oblanceolate acute, 1.1 cm. long; lip ovate in outline, acute or acuminate, as long as the petals, 3lobed, lateral lobes erect subacute, intermediate oblong, recurved at the apex, subacute or acuminate; column oblong narrowed towards the base and produced into a projecting foot; pollinia 4, connate in pairs.

Described from several living and dried specimens.

## TAB. 33.

Tribe VANDEÆ.

Sub-tribe CYMBIDIÆÆ.

Genus POLYSTACHYA.

**Polystachya similis**, *Reichenbach fil., in Otia Bot. Hamb.* (1881), p. 112.—Herba erecta terrestris, (an semper?) glabra præter rhachillas puberulas ramulorum lateralium, 15-50 cm. alta; caulis anceps validus, basi vaginis foliorum delapsorum vestitus; folia 3-5 erecto-patentia oblonga obtusa, minute biloba, sub-coriacea multinervia, basi vaginantia articulataque, 8-20 cm. longa; pedunculus vaginis membranaceis vestitus; panícula interrupta internodiis 3-6 cm. longis, e racemulis alternis adscendentibus vel erectis brevibus 5-10-floris; bracteæ ovatæ cuspidatæ parvæ; sepala subpatentia lateralibus subtriangularibus acutis vel obtusis, columnæ pedi adnatis 0.5 cm. longis, impari ovato, 0.4 cm. longo; petala porrecto-incurva oblanceolata, obtusa, 0.4 cm. longa; labellum circuitu obovatum, sepalis lateralibus æquilongum 3lobum, lobis lateralibus subfalcatis acutis, intermedio paullo longiore, suborbiculari, apice leviter recurvo, lamella unica cristato; columna brevis basi in pedem porrectum producta. (*Ex exemplaribus pluribus vivis exsiccatisque.*)

**Hab:** **South-eastern Region**; CAPE COLONY: on the mountain on the west side of the mouth of St. John's River, alt. circ. 300 met., fl. Feb., *H. G. Flanagan*, 2551! in my herb.—NATAL: Tongaat, fl. Jan.-Feb., *Mrs. K. Saunders*, 6117! in my herb.; Riet Valley, *Mrs. Rathbone!* in herb., Kew.

**Plate 33.** Fig. 1, flower, front view; 2, ditto, side view; 3, one of the side sepals; 4, odd sepal; 5, one of the petals; 6, lip, flattened out; 7, lip and column, side view, shewing the line of attachment of the near side sepal; 8, pollinarium; 9, section of stem—all variously enlarged.

An erect terrestrial (as far as the specimens under examination go) herb, glabrous, except for the pubescent rhachillæ, 15-50 cm. high; stem ancipital stout, at the base clothed with the sheaths of fallen leaves; leaves 3-5, erect-spreading oblong obtuse, minutely bilobed, subcoriaceous many-nerved, sheathing and articulate at base, 8-20 cm. long; peduncle clothed with membranous sheaths;

panicle interrupted, internodes 3-6 cm. long; consisting of alternate ascending or erect short 5-10 flowered racemules; bracts ovate cuspidate small; sepals somewhat spreading, the lateral subtriangular acute or obtuse, adnate to the foot of the column, 0.5 cm. long, odd sepal ovate, 0.4 cm. long; petals projecting incurved oblanceolate obtuse, 0.4 cm. long; lip obovate in outline, equal to the lateral sepals, 3lobed, lateral lobes subfalcate acute, intermediate a little longer, suborbicular, slightly recurved, crested with one raised ridge; column short, produced at base into a projecting foot.

Described from several living and dried specimens. The drawing was made from a plant collected by Mr. H. G. Flanagan at St. John's River mouth, and, together with several others he got at the same place, clearly appears to be terrestrial.



## TAB. 34.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HOLOTHRIX.

**Holothrix orthoceras**, *Reichenbach, fl. in Otia Bot. Hamb.* (1881), p. 119.—Herba terrestris erecta 8-25 cm. alta; folia 2 radicalia humistrata ovata acuta reticulato-venosa inæqualia, 2-7 cm. longa; scapus strictus vel flexuosus gracilis nudus pubescens; spica sublaxe 5-16flora, floribus secundis, 2-6 cm. longa; bracteæ lanceolatæ setaceo-cuspidatæ, ovario paullo breviores; sepala ovata acuminata, 0·25 cm. longa; petala duplo longiora, nunc oblique lanceolata acuminata nunc ovata acuminata; labellum circuitu obovatum 3lobum, lobis lateralibus oblongis acutis patentibus integris vel rarius bilobis, intermedio multo latiore tri-vel-multilobulato, 0·9 cm. longum, calcare recto cylindrico-conico 0·4 cm. longo; glandulæ duæ discretæ. (*Ex exempll. plur. viv. exsiccatisque.*)—*Tryphia orthoceras*, *Harv. in Thes. Cap.* ii., p. 4, tab. 105.

*Hab.* : **South-eastern Region** ; CAPE COLONY : rocky places in woods near Grahamstown. *P. MacOwan*, No. 1288 in my herb. ; ditto fl. March, *B. South!* Perie, alt. 1200 met., fl. Nov., *T. R. Sim*, 947!—TRANS-VAAL : Barberton, alt. 1080 met., fl. March, *Culver*, 50! ; Houtboschberg, alt. 1650 met., fl. March, *R. Schlechter*, 4738!

**Plate 34.** Fig. 1, flower, side view ; 2, 2, side sepals ; 3, odd sepal ; 4, 4, petals ; 5, one of the petals from another flower ; 6, lip ; 7, ditto from another flower ; 8, 9, 10, column ; 11, pollinia.

An erect terrestrial herb, 8-25 cm. high ; leaves 2, radical appressed to the ground, ovate acute netted-veined unequal, 2-7 cm. long ; scape straight or flexuose slender nude pubescent ; spike rather laxly 5-16flowered, flowers secund, 2-6 cm. long ; bracts lanceolate cuspidate, a little shorter than the ovary ; sepals ovate acuminate, 0·25 cm. long ; petals twice as long, obliquely lanceolate acuminate or ovate acuminate ; lip obovate in outline 3lobed, lateral lobes oblong acute spreading entire or more rarely bilobed, intermediate much broader, 3- or many-lobulate, 0·9 cm. long, spur straight cylindrical-conical, 0·4 cm. long ; glands 2, distinct.

Described from several living and dried specimens.



## TAB. 35.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HOLOTHRIX.

**Holothrix Lindleyana**, *Reichenbach fil., in Otia Bot., Hamburg* (1881), p. 119.—Herba erecta præter scapum pubescentem, glabra, 7-18 cm. alta; folia dua humistrata, ovata vel ovato-oblonga acuta subæqualia, 1·5-5·5 cm longa: scapus gracilis flexuosus nudus pubescens vel glabrescens; spica laxè 6-14flora, floribus sæpius secundis; bracteæ lanceolatæ cuspidatæ, ovario breviores; sepalum impar ovatum acutum, lateralibus falcatis acuminatis valde concavis, 0·3 cm. longis; petala erecto-recurva oblonga obtusa 2-3 plo sepalis longiora; labellum circuitu orbiculare, tripartitum, laciniis lateralibus oblongis vel obovatis obtusis, intermedio trifido laciniis oblongis, 0·9 cm. longum, calcare cylindrico sæpissime spiraliter recurvo, labello duplo breviorè; pollinia nunc discreta nunc glandulis per filum transversum junctis. (*Ex exempll. plur. vivis exsiccatisque*). *Tryphia secunda*, *Lindl. in Comp. Bot. Mag.*, ii. (1836), p. 209; *Harvey, Thes. Cap.*, ii. (1863), tab. 105.

**Hab: South-eastern Region; CAPE COLONY:** Port Elizabeth, fl. July, *Miss West*, 216!; Uitenhage, Zwartkops River, amongst mosses in a forest, fl. Sept., *Zeyher*, 137! Signal Hill, Grahams-town, 730 met., fl. Sept., *E. E. Galpin*, 162!; Botha's Hill, fl. Nov., *MacOwan*, 627!—**Karoo Region;** near Steytlerville, *Dr. Lawrence!* Mts. near Swanepoels' Poort, under shady rocks, 1200 met., fl. Sept., *R. Marloth*, 4130!

**Plate 35.** Fig. 1, flower, side view; 2, ditto, from another plant; 3, sepals; 4, one of the petals; 5, lip; 6, ditto, from another plant; 7, column, side view; 8, ditto, front view, *r*, rostellum, *g*, gland, *s*, stigma; 9, pollinium; 10, pollinarium, from another plant.

An erect herb, glabrous, except for the pubescent scape, 7-18 cm. high; leaves two, flat on the ground, ovate or ovate-oblong acute subæqual, 1·5-5·5 cm. long; scape slender flexuous nude pubescent or glabrescent; spike laxly 6-14flowered, flowers usually secund; bracts lanceolate cuspidate, shorter than the ovary; odd

sepals ovate acute, lateral falcate acuminate very concave, 0.3 cm. long ; petals erect-recurved oblong obtuse, 2-3 times longer than the sepals ; lip orbicular in outline, tripartite, the lateral segments oblong or obovate obtuse, the intermediate trifid with the lobes oblong, 0.9 cm. long, spur cylindrical, usually spirally recurved, half as long as the lip ; pollinia sometimes distinct, sometimes having the glands united by a transverse thread.

Described from several dried and living specimens. Drawing made from several living specimens—the larger plant figured was collected by Mr. J. Glass, near Grahamstown, the smaller one was sent from near the Knysna. Figs. 2 and 6 were drawn from flowers of a plant sent by Mr. J. Mackie from Port Elizabeth ; Fig. 10 from the Knysna specimens—all the rest from the Grahamstown plants.

Colour of the petals, lip and spur pure white ; scape reddish ; sepals and bracts green.

## TAB. 36.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HOLOTHRIX.

**Holothrix condensata**, *Sonder in "Linnæa" xix.* (1847), *p.* 76. Herba erecta, perianthii segmentis exceptis, pilis patentibus hirsuta, 7-20 cm. alta; folia dua humistrata radicalia late ovata vel orbicularia, valde inæqualia 3-6 cm. longa; scapus nudus sæpissime supra basin late arcuato-decurvus; spica secunda dense multiflora 3-10 cm. longa; bracteæ lanceolatae ovario breviores; sepala ovata acuta, vel sepalo impari acuminato, 0·4 cm. longa; petala patenti-recurva, oblonga obtusa 0·7 cm. longa; labellum circuitu late obovatum apice trifidum, laciniis æqualibus vel intermedio paullo majore, lateralibus patentibus, petalis æquilongum, calcare cylindrico recto sepalis æquilongo; pollinium caudiculæ in glandula transversa unica insedentes. (*Ex exempll. plur. viv. exsiccatisque.*) *Bolus Orch. Cape Penins.* (1888), *p.* 115, *tab.* 22, *fig.* 8-11, *anal.*

**Hab. : South-western Region ;** CAPE COLONY : in fissures of rocks Table Mt., alt. 840 met., fl. Dec., *Bolus* 4905; Constantiaberg, fl. Nov., *Wolley-Dod*, 2139! Waai Vlei, fl. Dec., *id.* 2306! near Swellendam, *Mund* (ex Sonder).

**Plate 36.** Fig. 1, flower, side view, x3; 2, parts of ditto, x6; 3, ovary, column and labellum, x6; 4, column, anterior view and somewhat from beneath; 5, ditto, inclined forward, the clinandrium partially opened to shew the pollinia *in situ*; 6, pollinarium.

An erect herb, except for the perianth segments, hirsute with spreading pilose hairs, 7-20 cm. high; leaves two, appressed to the ground, radical broadly ovate or orbicular, very unequal 3-6 cm. long; scape nude, usually from above the base widely arcuate-decurved; spike secund densely many-flowered, 3-10 cm. long; bracts lanceolate, shorter than the ovary; sepals ovate acute or

the odd sepal acuminate, 0.4 cm. long ; petals spreading-recurved oblong obtuse, 0.7 cm. long ; lip as long as the petals broadly obovate in outline, trifid at the apex, the segments equal or the intermediate larger, spur cylindrical straight, as long as the sepals ; caudicles of the pollinia attached to a single transverse gland.

Described from several dried and living specimens. Drawing made from my No. 4905 gathered on Table Mt.



## TAB. 37.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HOLOTHRIX.

**Holothrix secunda**, *Reichenbach fil.*, in *Otia Bot. Hamb. Fasc.* ii., *pars.* 1, *p.* 119 (1881).—Herba erecta gracilis glabra, 10-25 cm. alta; folia radicalia dua humistrata ovata vel suborbicularia sæpe carnososa inæqualia, 2-4·5 cm. longa; scapus nudus flexuosus; spica laxe 3-20flora secunda, 3-10 cm. longa; bracteæ lanceolatae cuspidatae ovario breviores; sepala ovata acuta 0·3 cm. longa; petala labello adnata, lanceolata sursum attenuata, 0·7 cm. longa; labellum circuitu orbiculare apice 5fidum, laciniis patentibus linearibus inter se subæqualibus, totum petalis æquilongum, calcare leviter recurvo cylindrico obtuso, labello duplo brevior; glandulæ pollinium 2, discretæ. (*Ex exempll. plur. viv. exsiccatisque*).—*Orchis secunda*, *Thunb. Prodr. pl. Cap.* (1794), *p.* 4; *Flor. Cap.*, ed. 1823, *p.* 6; *Tryphia major*, *Sonder*, in "*Linnæa*," xix. (1847). *p.* 82.

*Hab* : **South-western Region** ; CLANWILLIAM, alt. 100 met., fl. August, *R. Schlechter*, 8599! same place, *C. L. Leopoldt*! near Wupperthal, alt. 900 met., fl. Oct., *Bolus*, 9094.—NAMALAND, near Ookiep, alt. 960 met., fl. Sept., *G. Warden*, No. 6570 in my herb.; near Ashton, distr. Worcester, alt. 200 met., *R. Marloth*, 3234!

**Plate 37.** Fig. 1, flower, side view; 2, ditto, front view; 3, 3, side sepals; 4, odd sepal; 5, 5, petals; 6, lip; 7, column, front view, the flaps of the anther cells pulled open to shew the pollinia *in situ*; 8, one of the pollinia—all variously magnified.

An erect slender glabrous herb, 10-25 cm. high; leaves 2, radical, appressed to the ground, ovate or suborbicular, often fleshy, unequal, 2-4·5 cm. long; scape nude flexuous; spike laxly 3-20flowered secund, 3-10 cm. long; bracts lanceolate cuspidate shorter than the ovary; sepals ovate acute 0·3 cm. long; petals adnate to the lip, lanceolate, attenuate upwards, 0·7 cm. long; lip orbicular in outline, 5fid at the apex, the segments spreading linear subequal,

the whole as long as the petals, spur slightly recurved cylindrical obtuse, half as long as the lip ; glands of the pollinia 2, distinct.

Described from several dried and living specimens. Drawing made from a plant collected by Mr. C. L. Leipoldt, near Clanwilliam. Colour of the sepals dull greenish, petals and lip cream colour, stem dull purple.

## TAB. 38.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HOLOTHRIX.

**Holothrix Scopularia**, *Reichenbach, fl. in Otia Bot. Hamb. Fasc ii., part I.* (1881).—Herba erecta, petalis exceptis pilis patentibus hirsuta, 20-35 cm. alta; folia 1-2 radicalia, humistrata, 1.5-3.5 cm. longa; scapus nudus in genere subvalidus, subflexuosus, rarius substrictus; spica sub-secunda dense multiflora, bracteis ovato-lanceolatis acutis longe ciliatis; sepala lanceolata acuminata, 0.4-0.5 cm. longa; petala erecta basi oblonga, apice 3fida, laciniis linearibus, 0.7-1 cm. longa; labellum circuitu cuneatum apice multifidum, laciniis inter se similibus subæqualibusque, petalis æquilongum, calcare cylindrico obtuso apice recurvo, labello triplo brevior; pollinia clavata caudiculis in glandula unica filiformi transversa insidentibus. (*Ex exempll. plur. vivis exsiccatisque*).—*Scopularia secunda* Lindl. in *Comp. Bot. Mag.* ii., p. 207 (1836); *H. multisecta*, Bol. in *Journ. Linn. Soc.*, vol. xxv., p. 170 (1890); *H. pleistodactyla*, Kränzlin in *Engl. Pflanzw. Ost. Afr.*, pars c., p. 151 (1895); *R. A. Rolfe in Flor. Trop. Afr.*, v. 6, p. 193 (1898); *H. Nyassæ*, Rolfe in *l.c. fide Schlechter*.

**Hab. : South-eastern Region ;** CAPE COLONY: summit of Elandsberg Stockenstrom, alt. 1820 met., fl. Jan., *W. C. Scully*, 391, in *herb. Norm. Aust.-Afr.*, 1371; Witteberg Mts., alt. circ. 1800-2400 met. *Drège*; Mt. Currie, 1615 met., fl. Oct., *W. Tyson*, 1542!; ORANGE FREE STATE: Mont aux Sources, 2700 met., fl. Jan., *H. G. Flanagan*, 1980!; TRANS-VAAL: near Barberton, alt. 1370 met., fl. Sept.-Oct., *E. Galpin*, 585!; same station, *W. Culver*, 72! also in Tropical Africa.

**Plate 38.** Fig. 1, flower with bract; 2, ditto, side view; 3, 3, side sepals; 4, odd sepal; 5, one of the petals; 6, lip; 7, column, front view; 8, ditto with the flaps pulled aside to shew the pollinia *in situ*; 9, pollinarium; 10, bract.

An erect herb, except the petals hirsute with spreading pilose hairs, 20-35 cm. high; leaves 1-2, radical, appressed to the

ground, 1.5-3.5 cm. long ; scape nude, rather stout for the genus, subflexuous, rarely straight ; spike subsecund, densely many flowered ; bracts ovate-lanceolate, acute long ciliate ; sepals ovate-lanceolate acuminate 0.4-0.5 cm. long ; petals erect, oblong below, trifid at the apex, the laciniae linear, 0.7-1 cm. long ; lip in outline cuneate multifid, segments similar to each other and subequal, spur cylindrical obtuse recurved at the apex, one-third of the length of the lip ; pollinia clavate, the caudicles attached to one filiform transverse gland.

Described from several living and dried specimens, from the largest of which gathered by Mr. Flanagan on or near the summit of the lofty Mont aux Sources, about 9000 feet or 2740 meters.

Petals and lip white-greenish at base ; sepals and bracts reddish at the tip, green below.

## TAB. 39.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HOLOTHRIX.

**Holothrix Burchellii**, *Reichenbach fil. in Otia Bot. Hamb., Fasc. ii., part 1, p. 119* (1881).—Herba erecta, præter scapum basi pubescentem, glabra, 15-50 cm. alta; folia 2 radicalia humistrata orbicularia vel subreniformia crassa carnosa, 2-5 cm. longa valde inæqualia; scapus strictus bracteis 3-4 ovatis acuminatis parvis erectis appressis præditus; spica densa 6-15 cm. longa, secunda, floribus dimorphis, inferioribus fertilibus superioribus sterilibus; sepala lanceolata acuta 0.5 cm. longa; impari latiore ovato; petala oblonga apice 7fida, in sterilibus 7partita, laciniis longioribus; labellum concavum oblongum, 0.9 cm. longum, multifidum, laciniis setaceis, calcare cylindrico labello fere duplo brevior; pollinia clavata, caudiculis in glandula transversa unica filiformi insidentibus vel in floribus sterilibus interdum in glandulis discretis. (*Ex exempll. plur. exsiccatis et unico vivo.*) *Scopularia Burchellii*, *Lindley in Gen. & Sp. Orch.* (1835), p. 303.

**Hab :** **South-western Region ;** CAPE COLONY : near Riversdale, alt. 120 met., fl. Nov., *Burchell*, 6709; same station, fl. Oct., *Bolus*, 11382; near Oudtshoorn, alt. 330 met., fl. Oct., *Miss Beatrice Hops!*—**Karoo Region ;** Oudeberg, near Graaff Reinet, alt. 1219 met., fl. Nov., *Bolus*, 177.—**South-eastern Region ;** grassy slopes near King William's Town, alt. 360 met., fl. Nov., *H. G. Flanagan*, 2206; Mount Coke, fl. Sept., *T. R. Sim!* hills about Queenstown, fl. Oct., *A. H. Wolley-Dod* (without number)! in my herb.; near Komgha, without number, *H. G. Flanagan*, in my herb.

**Plate 39.** Fig. 1, fertile flower, side view; 2, ditto, front view; 3, odd sepal; 4, side sepals; 5, one of the petals of the fertile flower; 6, lip of ditto; 7, column, front view; 8, ditto, side view; 9, pollinarium of fertile flower; 10, one of the sterile flowers; 11, one of the petals of ditto; 12, lip of ditto; 13, one of the pollinia of ditto.

An erect herb, everywhere glabrous except the pubescent base of the scape, 15-50 cm. high; leaves 2, radical, appressed to the

ground, orbicular or subreniform thick and very fleshy, 2-5 cm. long, very unequal : scape straight with 3-4 small ovate acuminate erect appressed bracts. Spike dense secund with dimorphous flowers, the lower fertile, passing into the upper aborted ones ; 6-15 cm. long ; sepals lanceolate acute 0.5 cm. long, the odd one ovate, petals oblong, 7fid at the apex, or, in the sterile flowers, 7partite, the segments longer than in the fertile ; lip concave oblong 0.9 cm. long, multifid, the segments setaceous, spur cylindrical recurved obtuse nearly half as long as the lip. Pollinia clavate, the caudicles in the fertile flowers attached to a single transverse filiform gland ; or in the sterile flowers sometimes or always on 2 distinct glands.

Described from several dried specimens, and a living one received from Mr. T. R. Sim, from which the drawing was made.



## TAB. 40.

Tribe OPHRYDEÆ.

Genus HOLOTHRIX.

**A. *Holothrix Culveri***, *Bolus in Journ. S. Afr. Philosoph. Soc.*, vol. xvi., part 2, p. 147 (1905).—Herba erecta, ad 12 cm. alta; folia radicalia 2 (?), unicum tantum visum emarcidum ovatum; scapus gracilis, vaginulis remotis erectis lanceolatis acuminatis aristulatis membranaceis vestitus, basin versus retrorse pilosus, sursum glabrescens; spica cylindrica, dense multiflora (30-60 fl.), 4-5 cm. longa, 0·8 cm. diam., floribus quaquaversis (vel interdum, ex collectore, secundis); bracteae lanceolatae acuminatae; sepala lateralibus oblanceolata, dorsale oblongum, acuta, 0·22 cm. longa; petala patenti-reflexa oblonga acuta 0·31 cm. longa, quam sepala duplo latiora, cum labello minute papilloso-scabriuscula; labellum subquadratum 3lobum, lobulis lateralibus columnae adnatis dentiformibus, vel in var. B. omnino carentibus, lobo intermedio multo majore, subtrulliformi, breviter acuto, supra basin angustato, marginibus eleganter curvo-ampliatis, tota lamina 0·35 cm. longa et lata, basi in calcar suberectum acutum 0·15-0·2 cm. longum, producta; columna ovalis; pollinium caudiculae brevissimae, glandulis discretis vel (ex collectore) filo extensivo connexis.

**Var. B. *integra***; sepalis lateralibus calcaratis; labelli lobulis lateralibus carentibus; ceteris ut in typo. (*Ex exempll. duobus exsiccatis*). *Deroëmeria Culveri*, *Schlechter in Engl. Bot. Jahrb.*, vol. xxxviii., p. 145 (1907).

*Hab.*: TRANS-VAAL: Fig-tree Creek, near Barberton, on rocky slopes, alt. 600 met., fl. Sept., *W. Culver*, 84! Var. B., growing with and close to the typical form, *W. Culver*, 84a!

**Plate 40 A.** Plant on the left drawn from *Culver*, 84. Fig. 1, odd sepal; 2, one of the side sepals; 3, one of the petals; 6, lip; 8, column, front view; 9, one of the pollinia with separate gland—all made from the same. Plant on the right drawn from *Culver*, 84a. Fig. 4, odd sepal; 5, one of the side sepals; 7, lip.

An erect herb, 12 cm. high; leaves radical 2 (?) only one seen, withered ovate; scape slender, clothed with remote erect lanceo-



## TAB. 41.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus STENOGLOTTIS.

**Stenoglottis fimbriata**, *Lindley, in Hook. Comp. Bot. Mag., vol ii., p. 210 (1836).*—Herba terrestris erecta 10-36 cm. alta; tubera plura fasciculata oblonga; folia 6-10, radicalia rosulata patentia oblonga acuta vel lanceolata, basin versus attenuata, marginibus undulatis, maculata, 2·5-11 cm. longa; scapus strictus, cum ovariis, scaberulus, 3-5 vaginis lanceolatis acuminatis maculatis præditus; spica oblonga subaxe multiflora, 2·5-14 cm. longa; bracteæ plerumque ovario breviores; sepala ovata obtusa, cum petalis oblongis, marginibus serrulato-fimbriata vel ciliata, 0·5 cm. longa; labellum circuitu obovato-oblongum, apice 3fidum, laciniis acutis, intermedio angustiore, ecalcaratum, 0·9 cm. longum; columna brevis obtusa; staminodia erecta falcata obtusa lateribus columnæ adnata; pollinia erecta, caudiculis brevibus, glandulis discretis orbicularibus, granulis magnis laxis; rostellum breve latiusculumque. (*Ex exemplari unico vivo pluribusque siccatis.*)—*Harv. Thes. Cap. t. 56. Hook. Bot. Mag. t. 5872.*

**Hab: South-eastern Region;** CAPE COLONY: southern face of Signal Hill, Grahamstown, alt. 730 met., fl. Aug., *E. E. Galpin, 56!* valley near Kentani, alt. 450 met., fl. April, *Alice Pegler, 275!*; Zuurberg Mts., Griqualand East, alt. 1070 met., fl. Feb., *W. Tyson, 1688!*—NATAL: *Wood, 858!*—TRANS-VAAL: Houtbosch, *A. Rehmann, 5856!* near Barberton, fl. Feb., *W. Culver, 23!*

**Plate 41.** Fig. 1, flower, side view; 2, ditto, front view; 3, odd sepal; 4, 4, petals; 5, lip; 6, column, with portion of lip and one petal; 7, 9, column, front view; 8, 10, ditto, side view; 11, one of the pollinia with caudicle and gland.

An erect terrestrial herb, 10-36 cm. high; tubers several fasciculate, oblong; leaves 6-10 radical rosulate spreading oblong acute or lanceolate, attenuate at base, margins undulate, spotted, 2·5-11 cm. long; scape straight, as well as the ovaries, scaberulous, furnished with 3-5 lanceolate acuminate spotted sheaths; spike oblong subclaxly many-flowered, 2·5-14 cm. long; bracts usually

shorter than the ovary ; sepals ovate obtuse, as well as the oblong petals serrulate-fimbriate or ciliate on the margin, 0·5 cm. long ; lip obovate-oblong in outline, 3fid at the apex, segments acute, the intermediate narrower, ecalcarate, 0·9 cm. long ; column short obtuse ; staminodes erect falcate obtuse, adnate to the sides of the column ; pollinia erect, caudicles short, glands distinct orbicular, pollen grains large lax ; rostellum short and rather broad.

Described from several dried specimens and a living plant sent by Miss Alice Pegler from which the drawing was made.

## TAB. 42.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIÆÆ.

Genus HABENARIA.

**Habenaria arenaria**, *Lindley in Gen. & Sp. Orch.* (1835), p. 317.—Herba gracilis erecta glabra 25-48 cm. alta; folia bina radicalia, oblonga acuta, basi in petiolum vaginatum attenuata, marginibus undulatis, leviter nervosa patentia, vel vix adscendentia, 6-20 cm. longa, 3-6 cm. lata; scapus erectus substrictus, vaginis 2-5 sub-distantibus vestitus; racemus laxe 12-15florus, 6-15 cm. longus, floribus patentibus vel arcuato-adscendentibus, pedicellis cum ovario 1·5-3 cm. longis; bracteæ lanceolatæ acuminatæ ovario pedicellato multo breviores; sepala lateralialia oblique ovato-oblonga acuminata cum sepalo impari maculis hyalinis conspersa, 0·5 cm. longa, impari late ovato, paullo brevior; petala circuitu ovato-lanceolata concava, sepalo posteriori leviter adhærentia; labellum 3partitum, segmentis linearibus, lateralibus patentibus, petalis æquilongis, intermedio parum longiore latioreque, basi in calcar pendulum filiforme sæpius ovario pedicellato æquilongum productum, calcaris orificio processu erecto dentiformi præditum; clinandrium subtruncatum; rostellum 3fidum, segmentis lateralibus brevibus, intermedio fere duplo longiore latioreque; processus stigmatiferi brevissimi. (*Ex exempll. pluribus vivis exsiccatisque*).—*Bonatea micrantha*, *Lindley, Gen. & Sp. Orch.* (1835), p. 329; *H. micrantha*, *Reichb. f. in "Flora"* (1865), p. 180.

*Hab.* : **South-western Region**; CAPE COLONY: near Knysna, fl. April, *Miss C. Newdigate*!—**Karoo Region**; near Graaf Reinet, alt. 760 met., fl. June, growing under bushes, *Bolus*, 83!—**South-eastern Region**; in woods, near Komgha, fl. April, alt. 600 met., *H. G. Flanagan*, 823!; Boschberg, near Somerset East, *P. MacOwan*!—TRANS-VAAL: near Barberton, fl. April-May, alt. 850-1220 met., *W. Culver*, 37-38!

**Plate 42.** Fig. 1, flower, front view; 2, one of the side sepals; 3, odd sepal; 4, one of the petals; 5, one of the side lobes of the lip from another flower; 6, column and lip (the spur cut off below) and one petal; 7, portion of lip at base, shewing orifice of spur and erect tooth-like process in front of it; 8, column

with process of lip left *in situ* to shew its position, front view ; 9, ditto, side view ; 10, rostellum detached and laid open ; 11, one of the pollinia.

An erect slender glabrous herb, 25-48 cm. high ; leaves 2nate radical oblong acute, attenuate at base into a sheathing petiole, margins undulate, spreading or scarcely ascending, 6-20 cm. long, 3-6 cm. broad ; scape erect, rather straight, clothed with 2-5 remote sheaths ; raceme laxly 12-15flowered, 6-15 cm. long, the flowers spreading or arcuate—ascending, pedicels and ovary 1.5-3 cm. long ; bracts lanceolate acuminate much shorter than the pedicellate ovary ; lateral sepals obliquely ovate-oblong obtusely acuminate, with the odd sepal sprinkled with hyaline spots, 0.5 cm. long, odd sepal broad ovate, a little shorter ; petals ovate-lanceolate in outline concave, slightly adhering to the odd sepal ; lip 3partite, the segments linear, lateral ones spreading, as long as the petals, intermediate a little longer and broader, produced at the base into a pendulous filiform spur usually as long as the pedicellate ovary, furnished at the mouth of the spur with a tooth-like erect process ; clinandrium subtruncate ; rostellum 3fid the lateral segments short, the intermediate nearly twice as long and wide ; stigmatiferous processes very short.

Described from several dried and living specimens. The drawing was made from a plant sent to me by Miss C. Newdigate from the Knysna.



## TAB. 43.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HABENARIA.

**Habenaria clavata**, *Reichenbach, fl. in "Flora" (1865), p. 180.*—Herba erecta glabra robusta, 25-50 cm. alta; folia adscendentia imbricata ovato-oblonga, acuta, basi vaginantia, 7-15 cm. longa, sensim in vaginas cucullatus mutata; racemi pauci vel dense multiflori, floribus adscendentibus longe pedicellatis, 10-20 cm. longi; bracteæ ovato-oblongæ, ovariis pedicellatis fere duplo breviores; sepala patentia, vel lateralia demum reflexa, concava semi-obovata, sub-acuta, 1·7 cm. longa, impari oblongo obtuso, 1·4 cm. longo; petala bipartita, segmentis anguste linearibus, posterioribus sepalo impari adhærentibus æquilongisque, anterioribus liberis arcuato-incurvis, duplo longioribus; labellum tripartitum, laciniis anguste linearibus, lateralibus sepalo impari æquilongis, intermedio paullo longiore, basi in calcar pendulum, apice clavato-inflatum, ovario pedicellato æquilongum productum; clinandrium ovatum obtusum; rostellum tri-partitum, segmento intermedio sublanceolato, 0·2 cm. longo; brachiis caudiculiferis porrectis, intermedio 6plo longioribus; pollinia sphæroidea, glandulis minutis; processus stigmatiferi, brachiis caudiculiferis æquilongi, apice excavati; ovarium cum pedicello arcuato incurvum, 3-5 cm. longum. (*Ex exempl. unico vivo, pluribusque exsiccatis.*)—*Bonatea clavata*, *Lindl. in Hook Comp. Bot. Mag., vol. ii. (1836), p. 208.*

**Hab. : South-eastern Region ;** CAPE COLONY : Grassy flat near Kei R. mouth, fl. Jan., alt. 60 met., *H. G. Flanagan* ; Dohne Hill, fl. March, *T. R. Sim*, 44 ! ; TRANS-VAAL : Saddleback Mt., near Barberton, 1400 met., fl. Feb., *E. Galpin*, 801 ! near Kokstad, 1500 met., fl. Feb., *Tyson* in herb. Norm. Austr. Afr., 451 ! ; NATAL : *J. Sanderson*, 489 ! ; ORANGE R. COLONY : Bester's Vlei., 1600 met., fl. Jan., *Bolus*, 13459 ! ; TRANS-VAAL : Rocky Mountains, Houtbosch, district Petersburg, alt. 1400 met., fl. Feb., *Bolus*, 10974 ! grassy places, Wonderfontein, near the railway station, alt. 1800 met., fl. Jan. *Bolus*, 12310 !

**Plate 43.** Fig. 1, reduced sketch of plant ; 2, raceme, natural size ; 3, flower, front view ; 4, ditto, side view sepals, the

near petal and stigmatiferous processes removed ; 5, anther, rostellum and stigmatiferous processes ; 6, one of the petals ; 7, one of the pollinia with caudicle and gland.

An erect, glabrous, robust herb, 25-50 cm. high ; leaves ascending imbricate ovate-oblong acute, sheathing at base, 7-15 cm. long, passing gradually into the cucullate sheaths ; racemes few—or densely many-flowered, 10-20 cm. long ; flowers ascending long-pedicellate, 10-20 cm. long ; bracts ovate-oblong, rather more than half as long as the pedicellate ovary ; sepals spreading, or the lateral at length reflexed, concave semi-obovate subacute 1·7 cm. long, odd sepal oblong obtuse, 1·4 cm. long ; petals bipartite, segments narrow-linear, posterior adhering to and as long as the odd sepal, anterior free arcuate-incurved, twice as long ; lip 3partite, segments narrow-linear, the lateral as long as the odd sepal, intermediate a little longer, produced at base into a pendulous spur, inflated and clavate at the apex, as long as the ovary and pedicel ; clinandrium ovate obtuse ; rostellum 3partite, the intermediate segment sublanceolate, 0·2 cm. long, the arms bearing the caudicles of the pollinia projecting forward, 6 times longer than the intermediate segment ; pollinia spheroidal, glands minute ; stigmatiferous processes as long as the arms of the rostellum, hollowed at the apex ; ovary and pedicel arcuate-incurved, 3-5 cm. long.

Described from several dried specimens and a living plant collected at Bester's Vlei, from which the drawing was made.

## TAB. 44.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HABENARIA.

**Habenaria Bonatea**, *Reichb. fil. in Otia Bot. Hamb. Fasc. ii., part 1* (1881), p. 101, *in obs.*—Herba erecta robusta, glabra 30-80 cm. alta; caulis validus foliosus; folia oblonga vel ovato-oblonga acuta vel acuminata, basi vaginantia, 6-15 cm. longa; racemi dense multiflori, floribus adscendentibus, 10-20 cm. longi; bracteae conspicuae foliaceae, late ovatae, acuminatae convolutae, ovariis pedicellatis breviores; sepala lateralalia semi-ovata acuta patentia demum reflexa, 1.9-2.2 cm. longa, impar galeatum late ovatum, 1.7-1.9 cm. longum; petala bipartita, segmentis linearibus, posterioribus erectis falcatis, sepalo impari adhærentibus æquilongisque, anterioribus liberis angustioribus. 2.2-2.4 cm. longis; labellum 3-3.5 cm. longum, patenti-deflexum 3fidum, segmentis linearibus, acutis, lateralibus 2-2.5 cm. longis, intermedio paullo brevior abrupte flexo, orificio calcaris processu erecto dentiformi præditum; calcar pendulum apice inflatum ovarium pedicellatum æquans; clinandrium erectum cucullatum, a latere visum falcatum apiculatum, 0.9-1 cm. longum; rostellum paullo brevius, liberum cucullatum complicatum, manu explanatum circuitu suborbiculare, 3lobum, parte libera brachiorum caudiculiferorum brevi, lobo intermedio longiore obtuso, interstitiis ciliolatis; pollinia clavata, glandulis parvis; processus stigmatiferi porrecti lineares, apice parum dilatati rotundatique, 1.3-1.6 cm. longi; ovarium cum pedicello 4-5 cm. longum. (*Ex exempll. pluribus exsiccatis et unico vivo*).—*Orchis speciosa*, *Linn., f. Suppl.* (1781), 401; *Thunb., Flor. Cap.* (1823), 5. *Bonatea speciosa*, *Willd., Spec. Plant.* iv. (1805), 43; *Bot. Mag. t.* 2926; *Lodd. Cab. t.* 284. *H. robusta*, *N. E. Brown in Gard. Chron.* xxiv. (1885), p. 307.

**Hab.:** CAPE COLONY: **South-western Region**; near Darling, fl. Oct., *L. Péringuey!* (No. 13458 in my herb.); near Mossel Bay, fl. Oct., *Burchell*, 6321! **South-eastern Region**; among rocks near the Kei R., alt. 450 met., fl. Jan., *H. G. Flanagan*, 647! NATAL: without exact locality, *J. M. Wood*, 969!. TRANS-VAAL; near Potchefstroom, *J. H. McLea!* (No. 3038 in my herb.); near Rustenburg, alt. 1370 met., fl. April, *Miss Nation*, 184!

**Plate 44.** Fig. 1, flower, side view, the sepals removed; 2, ditto, front view; 2a, one of the petals; 3, side sepals, with front lobe of petals, lip and stigmatiferous processes connate in one piece, the spur cut off; 4, ditto, viewed obliquely from above—all the latter natural size; 5, column, stigmat. processes cut off, x2; 6, ditto, front view; 7, one of the side sepals, nat. size; 8, one of the pollinia, mag. To the right is a reduced sketch of the whole plant.

An erect robust glabrous herb, 30-80 cm. high; stem stout closely leafy; leaves oblong or ovate-oblong acute or acuminate, sheathing at the base, 6-15 cm. long; racemes densely many-flowered, 10-20 cm. long, flowers ascending; bracts conspicuous foliaceous, broadly ovate, acuminate convolute, shorter than the pedicellate ovaries; lateral sepals semi-ovate acute spreading, finally reflexed, 1.9-2.2 cm. long, the odd sepal galeate broadly ovate 1.7-1.9 cm. long; petals bipartite, the posterior segments erect falcate, adhering to and as long as the odd sepal, the anterior free narrower, 2.2-2.4 cm. long; lip 3-3.5 cm. long, spreading-deflexed, provided with an erect tooth-like process placed in front of the orifice of the spur, 3fid, segments linear acute, the lateral 2-2.5 cm. long, intermediate a little shorter abruptly bent; spur pendulous inflated at the apex, as long as the pedicellate ovary; clinandrium erect cucullate, viewed from the side falcate apiculate, 0.9-1 cm. long; rostellum a little shorter, free cucullate complicate, when flattened out, suborbicular in outline, 3lobed, the free part of the caudiculiferous arms short, the intermediate lobe longer obtuse, spaces between the lobes ciliolate; pollinia clavate, glands small; stigmatiferous processes projecting forward linear, a little dilated and rounded at the apex, 1.3-1.6 cm. long; ovary and pedicel 4-5 cm. long.

Described from several dried specimens and one living plant which flowered in a garden in Grahamstown, and was sent to me by Dr. Schönland. It was originally gathered at the Kowie R. Mouth.

## TAB. 45.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HABENARIA.

**Habenaria Bonatea**, *Reichb. f. var. Boltoni*, *Bolus*.—Herba sæpius gracilior, foliis remotioribus, racemis laxè pauci-floris, ceteris typicis. (*Ex exempll. pluribus siccis et unico vivo.*)—*H. Boltoni*, *Harv.*, *Thes. Cap.* i. (1859), *t.* 88.

*Hab.* : **South-eastern Region** ; CAPE COLONY : Coldstream, near Grahamstown, fl. Feb., *J. Glass!* (No. 6238 in my herb.) ; woods near Howison's Poort, *MacOwan!*—NATAL : Inanda, *Wood*, 969 !

**Plate 45.** Fig. 1, odd sepal, front view ; 2, ditto, back view ; 3, one of the side sepals, flattened out—all the latter nat. size ; 4, one of the petals x 2 ; 5, lip, the middle lobe flattened out, nat. size ; 6, lip, column and ovary, x  $1\frac{1}{2}$  ; 7, column, stigmatic arms cut off.

Usually more slender than in the typical form, with more distant leaves and racemes more lax and with fewer flowers—other characters as in the typical form.

Described from several dried specimens and a living specimen sent by Mr. J. Glass, from which the drawing was made. Harvey's figure in the *Thesaurus Capensis* shews *simple* petals—an error which has been followed by Dr. Kränzlin in his *Monograph*, p. 142, although Harvey *describes* them as bipartite. He has thus been led to place these two species, *H. Bonatea* and *H. Boltoni* far asunder, although there is no question that they are very closely allied.





## TAB. 46.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HABENARIA.

**Habenaria polyphylla**, *Kraenzlin in Engler. Bot. Jahrb.*, vol. xvi. (1893), p. 214.—Herba erecta glabra robusta 25-40 cm. alta; caulis validus foliosus; folia oblonga vel ovato-oblonga acuta basi vaginantia, 5-10 cm. longa; racemi dense multiflori, 6-14 cm. longi; bracteæ foliaceæ conspicuæ ovatæ ovariis pedicellatis breviores; sepala lateralìa patentia demum reflexa lanceolato-oblonga 1·2 cm. longa, impar late ellipticum, galeatum, 1·1 cm. longum; petala oblique late ovata, margine posteriori plus minus inflexa, sepalum impar æquantia; labellum porrectum 1·8 cm. longum, 3fidum, segmentis lateralibus filiformibus, 0·2 cm. longis, intermedio lineari-oblongo, marginibus revolutis, lateralibus 4-6plo longiore, basi in calcar pendulum apice inflatum ovario pedicellato brevius, productum; clinandrium oblongum apice rotundatum; rostellum 3lobum, intermedio erecto triangulare obtuso, lateralibus caudiculiferis declinatis brevibus, latiusculis; processu stigmatiferi æquilongi apice ampliati rotundatique. (*Ex exempl. unico vivo pluribusque exsiccatis*).—*Orchis foliosa*, Sw. in *Kongl. Vet. Acad. Handl.* xxi. (1800), p. 206; *Bonatea foliosa*, Lindl., *Gen. & Sp. Orch.* (1835), p. 329; *H. foliosa*, Reichb. f. in *Flora* (1865), p. 180, non Rich.

*Hab.*: **South-eastern Region**; CAPE COLONY: near the sea shore, Emerald Hill, near Port Elizabeth; fl. Jan., *Bolus*! near the Kowie R. mouth, *MacOwan*, 543! near Kentani, *Alice Pegler*, 864! Engocasi, district Umtata, alt. 1066 met., fl. Feb., *Bolus*, 10287; near Clydesdale, Griqualand East, alt. 660 met., fl. Feb., *Tyson*, 2045!—NATAL: *Mrs. K. Saunders*! Inanda, fl. Dec., *Wood*, 1018!—TRANS-VAAL: near Barberton, alt. 850 met., fl. Feb., *Galpin*, 793! near Potchefstroom, fl. Feb., *Burt Davy*, 1488! near Pietersburg, alt. 1200 met., fl. Feb., *Bolus*, 10882!—ORANGE FREE STATE: Witzie's Hoek, alt., 1950 met., fl. Feb., *J. Thode*, 50!

**Plate 46.** Fig. 1, flower with bract; 2, lip, side view; 3, ditto, back view; 4, one of the petals; 5, column, front view; 6, ditto, side view.

An erect, robust, glabrous herb, 25-40 cm. high ; stem stout, closely leafy ; leaves oblong or ovate-oblong, acute, sheathing at base, 5-10 cm. long ; racemes densely many-flowered, 6-14 cm. long ; bracts leaf-like conspicuous, ovate shorter than the ovary and pedicel ; side sepals spreading, at length reflexed, lanceolate-oblong, 1-2 cm. long, odd sepal widely elliptical, galeate, 1.1 cm. long ; petals obliquely broad-ovate, the posterior margin more or less inflexed, as long as the odd sepal ; lip projecting forward, 1.8 cm. long, 3fid, the lateral segments filiform 0.2 cm. long, the intermediate linear-oblong, margins revolute, 4-6 times longer than the lateral segments, produced at base into a long pendulous spur inflated at the apex and shorter than the pedicellate ovary ; clinandrium rotundate at the apex ; rostellum trilobed, intermediate lobe erect obtuse, the lateral ones bearing the caudicles of the pollinia, declinate short and broad ; stigmatiferous processes as long as the latter, widened and rounded at the apex.

Described from several dried specimens and a living plant collected at Emerald Hill, near Port Elizabeth, from which the drawing was made.

## TAB. 47.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrrium coriifolium**, *Swartz in Kongl. Vet. Acad. Handl.* xxi. (1800), p. 216 ; *Bot. Mag.*, tab. 2172 ; *Bot. Reg.*, tab. 703.—Herba robusta erecta, glabra, 30-75 cm. alta ; folia producta 2-3, erecto-patentia, elliptico-oblonga, acuta, rigida, coriacea in 2-3 vaginas scapi transeuntia, 7-20 cm. longa ; scapus strictus validus ; spica cylindrica, dense multiflora, 5-15 cm. longa, 2·5-3·5 cm. lata ; bracteæ oblongæ acuminatæ reflexæ, ovarium superantes ; sepala oblonga patenti-deflexa, 1·4 cm. longa ; petala sepalis conformia sed paullo angustiora, usque infra medium connata ; labellum galeatum, ore contracto, dorso carinato, apice libero breviter reflexo, calcaribus cylindricis, ovario paullo brevioribus ; stipes columnæ elongatus arcuato-deflexus ; rostellum transverse oblongum, antice 3lobum, lobo intermedio reliquis paullo longiore triangulari acuto ; lobus stigmatiferus transverse oblongus, rostellum fere æqualis subretusus. (*Ex exempll. vivis exsiccatisque.*) *Orchis lutea*, *Buxbaum, Cent.* III. (1729), 7, t. 10 ; *O bicornis*, *Linn. Sp. Plant*, ed. 2 (1763), 1330, non *Jacq.* ; *S. cucullatum*, *Lindl. in Lodd. Bot. Cab.* (1818), t. 104 ; *S. erectum*, *Lindl. Gen. & Sp. Orch.* (1838), p. 340, not of *Swartz* ; *S. chrysostachyum*, *Herschel in Bot. Reg.* (1838), sub tab. 154.

**Hab :** South-western Region ; CAPE COLONY : Flats and lower mountain slopes round Cape Town, alt. 12-213 met., fl. July-Nov., *Bolus*, 4557 ; *Schlechter*, 1553 ! *Wolley-Dod*, 495 ! near Caledon, *Zeyher*, 1555 ! Garcia's Pass, near Riversdale, alt. 450 met., *Bolus*, 13460 ! ; near Clanwilliam, *Leipoldt*, 239 ! near Knysna, *W. Tyson* ! also *Burchell*, 5551, 6067.

**Plate 47.** Fig. 1, flower, front view ; 2, ditto, side view ; 3, column, front view ; 4, ditto, side view.

A robust erect glabrous herb, 30-75 cm. high ; produced leaves 2-3, erect-spreading, elliptic-oblong acute rigid leathery, passing off gradually into the 2-3 sheaths of the scape, 7-20 cm. long ; scape straight stout ; spike cylindrical densely many-flowered, 5-15 cm. long, 2·5-3·5 cm. wide ; bracts oblong acuminate reflexed

longer than the ovary ; sepals oblong spreading-deflexed 1·4 cm. long ; petals like the sepals in shape but a little narrower, and connate for less than half their length ; lip galeate, mouth contracted, carinate at the back, apex free shortly reflexed, spurs cylindrical, a little shorter than the ovary ; foot of the column elongate arcuate-deflexed ; rostellum transversely oblong, 3lobed, the intermediate lobe a little longer than the others, triangular acute ; stigmatiferous lobe transversely oblong about equal to the rostellum, subretuse.

Described from many dried and living specimens. It is one of the commonest of the orchids growing round Cape Town and varies in colour from a yellow to a deep orange-red.

## TAB. 48.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium Woodii**, *Schlechter in Engl. Bot. Jahrb.*, v. xx., *Beiblatt* 50 (1895), p. 16.—“Caulis validus erectus aphyllus, 35-55 cm. altus, vaginis ovatis acutis, basi alte connatis tectus; folia 2 radicalia e gemma distincta ad basin caulis, erecto-patentia, ovata acuta, 7-15 cm. longa; spica densa multiflora, cylindrica, 8-12 cm. longa; bracteæ deflexæ lanceolatae acutæ, flores superantes; flores in genere majores; sepala petulaque deflexa, basi connata, sub-æquilongia, sepalo intermedio lineari obtuso, lateralibus latioribus, petalis apice margine ita recurvis, ut emarginati videantur, 0·7-0·8 cm. longis; labellum posticum, petalis æquilongum galeatum dorso perspicue carinatum, apicula libera subquadrata obtusa marginibus microscopice lacerato-incisis, calcaribus dependentibus acutiusculis ovarium paullo superantibus; columna gracilis, rostello basi subquadrato, apicem versus angustato, 3lobo, lobis lateralibus brevissimis dentiformibus acutis, medio deflexo lanceolato acuto, profunde sulcato, lobo stigmatifero semi-orbiculari obtusissimo, vel subemarginato, rostellii longitudine vel sub-breviore; anthera apice emarginata, connectivo angustiore; ovarium subcylindricum.” (*Ex descriptione clar. Schlechteri ipsius tum ex exempll. unico vivo pluribus exsiccatisque.*)

**Tab. : South-eastern Region ;** NATAL: Puff Adder Hill, near Umzimkulu, fl. Dec., *J. M. Wood*, 1411 ! also without special locality, *J. Sanderson*, 743; near Maritzburg, alt. 900 met., fl. Nov., *R. W. Adlam*, n. 6 “very rare.”—PONDOLAND: near Fort William, alt. 750 met., fl. Dec., *W. Tyson*, 2813 !—CAPE COLONY: Valleys near Kentani, approx. alt. 300 met., fl. Oct., *Miss A. Pegler*, No. 242 ! (specimen sent in a living state from which the figure Plate 48 was drawn).

**Plate 48.** Fig. 1, flower, front view; 2, ditto, side view; 3, 3, side sepals; 4, petals and odd sepal viewed from above; 5, ditto viewed from below; 6, column, side view; 7, ditto front view.

Stem stout, erect, leafless 35-55 cm. high, covered with ovate acute sheaths; leaves two, radical from a separate bud at

the base of the stem, erect-spreading, ovate acute, 7-15 cm. long; spike dense, many flowered, cylindrical, 8-12 cm. long; bracts deflexed lanceolate acute, exceeding the flowers; flowers rather large in the genus; sepals and petals deflexed connate at base, subequal in length, intermediate sepal linear-oblong obtuse, the lateral broader, "petals at the apex so recurved as to appear emarginate, 0.7-0.8 cm. long;" lip as long as the petals galeate carinate at the back, the apiculus free subquadrate obtuse, microscopically lacerate-incised on the edge, spurs pendent rather acute, a little longer than the ovary; column slender, the rostellum subquadrate at base, 3lobed, lateral lobes very short tooth-like, acute, the intermediate deflexed, lanceolate acute, deeply sulcate, stigmatiferous lobe semi-orbicular, very obtuse or sub-emarginate, as long as the rostellum; ovary subcylindrical.

In this species, not having seen the type, I have largely used Mr. Schlechter's original description with which Miss Pegler's specimen 242 fairly well agrees.



## TAB. 49.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium bicornis**, *Thunb. Prodr. Cap.* (1794), *p.* 6.—Herba glabra erecta, 20-50 cm. alta; folia 2, radicalia humistrata inæqualia cordato-orbicularia carnosula, 5-10 cm. longa; scapus strictus, vaginis 2-4 foliaceis basi alte connatis obtusiusculis laxè vestitus; spica cylindrica, sublaxè multiflora, 7-20 cm. longa; bracteæ oblongo-lanceolatæ reflexæ flores superantes; flores in genere mediocres pallide ochroleuci; sepala lateralìa oblonga obtusa, intermedio paullo angustiore, cum petalis recurva, 0·6 cm. longa; petala conformia sepalis paullo breviora; labellum galeatum subacutum apice porrecto, sepalis æquilongum, calcaribus pendulis filiformibus ovario multo longioribus; rostellum late oblongum apice truncatum, medio in dentem brevem linearem productum; lobus stigmatiferus, oblongus retusus, stipiti columnæ æquilongus, rostello longior. (*Ex exempll. plur. vivis exsiccatisque*) —*Orchis lutea*, *Buxbaum, Cent.* iii. (1729), 6, *t.* 8; *Orchis bicornis*, *Linn. Amœn. Acad.* vi. (1764), *p.* 109; *S. cucullatum*, *Swartz. in Kongl. Vetensk. Acad. Handl.* 21 (1800), *p.* 216; *Thunb. Flor. Cap.* (1823), *p.* 17; *Bot. Reg.*, *t.* 416; *Andr, Bot. Repos.* *t.* 315.

**Hab. : South-western Region ;** CAPE COLONY : Sandy dunes near Wynberg, fl. Aug.-Oct., *Harvey, Zeyher, Bolus*, 4556, *Schlechter*; Devil's Peak, alt. 240 met., fl. Sept., *Bolus*, 4559; near Tulbagh, alt. 152 met., fl. Sept., *R. Schlechter*.

**Plate 49.** Fig. 1, flower, front view; 2, ditto, side view; 3, column, front view; 4, ditto, side view.

An erect glabrous herb, 20-50 cm. high; leaves 2, radical appressed to the ground, unequal cordate-orbicular fleshy, 5-10 cm. long; scape straight, clothed with 2-4 leaf-like rather obtuse somewhat distant sheaths; spike cylindrical, somewhat laxly many flowered, 7-20 cm. long; bracts oblong-lanceolate reflexed, exceeding the flowers; flowers among the medium-sized in the genus, pale ochre yellow; lateral sepals oblong obtuse, intermediate a little narrower, all with the petals recurved, 0·6 cm. long; petals similar in shape, but a little shorter than the sepals; lip

galeate subacute, projecting forward at the apex, as long as the sepals; spurs pendulous filiform, much longer than the ovary; rostellum broadly oblong, truncate at the apex, in the middle produced into a short linear tooth; stigmatiferous lobe oblong retuse, as long as the stipe of the column and longer than the rostellum.

Described from several dried and living specimens.

## TAB. 50.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium foliosum**, *Swartz in Kongl. Vet. Acad. Handl.* 21 (1800) 216; *Thunb. Flor. Cap.* (1823) 18, *not of Lindl.* Herba erecta glabra 18-40 cm. alta; caulis substrictus validus foliosus; folia 3-4 erecto-patentia ovata acuta concava, in bracteas sensim transeuntia, 5-10 cm. longa; spica cylindrica multiflora, 5-16 cm. longa, 2·5-3 cm. diametro; flores in genere mediocres, erecto-patentes; bracteæ lanceolatae acuminatae sæpius flores superantes; sepala lateralialia patentia oblonga obtusa, 0·6 cm. longa, intermedio paullo angustiore, cum petalis recurvo; petala conformia; labellum galeatum, ore rotundato, apice libero reflexo erosulato, calcaribus pendulis filiformibus ovarii multo longioribus; columnæ stipes validus; rostellum rhomboideus, apice obscure tridentato; lobus stigmatiferus suborbicularis undulatus, apici oris galeæ fere attingens, eumque complens. (*Ex exempl. plur. vivis exsiccatisque.*)

**Hab :** **South-western Region ;** CAPE COLONY : Grassy places top of Table Mt., rare, alt. 1000 met., fl. Dec.-Feb., *Bolus*, 4858; same place, *Herb. Norm. Aust.-Afr.*, n. 155; *R. Schlechter*, 305!

**Plate 50.** Fig. 1, flower, front view; 2, perianth segments; 3, column, front view; 4, ditto, side view; 5, one of the pollinia; 6, section of ovary—all variously magnified.

An erect glabrous herb 18-40 cm. high; stem straight, or somewhat flexuous, stout leafy; leaves 3-4, erect-spreading ovate acute concave, passing off gradually into the bracts, 5-10 cm. long; spike cylindrical many-flowered, 5-16 cm. long, 2·5-3 cm. in diameter; flowers among the medium-sized in the genus, erect-spreading; bracts lanceolate acuminate usually exceeding the flowers; lateral sepals spreading oblong obtuse, 0·6 cm. long, the intermediate a little narrower, with the petals, recurved; petals similar in shape; lip galeate, the mouth rounded, apex free reflexed erosulate, spurs pendulous filiform, much longer than the ovary; stipe of the column stout; rostellum rhomboidal, obscurely 3-

dentate at the apex; stigmatiferous lobe suborbicular undulate on the margin, almost reaching to the apex of the mouth of the galea and filling it.

Described from several dried and living specimens. The drawing was made from one of the plants under my No. 4858.

This species is amongst the rarest of S. A. Orchids, and has hitherto only been found in one spot, or within a few hundred yards of one spot. The flowers are, fortunately for its survival, a dull yellow, turning brown in age, or its extinction by the Vandals of Cape Town might be feared within a very short time. In habit it resembles a little *S. lupulinum* (see vol. i., tab. 73 of this work), but may be distinguished by its shorter galea, its much shorter stigmatiferous lobe of the column, and its usually longer spurs. Lindley, knowing the two species only from dried specimens and descriptions, confused this with *S. Hallackii* mihi (*Orchids of the Cape Peninsula*, tab. 29), than which no *Satyrium* could be more unlike

## TAB. 51.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium parviflorum**, *Swartz, in Kongl. Vet. Acad. Handl.*, xxi. (1880), 216.—Herba erecta glabra, 30-80 cm. alta; caulis strictus foliosus; folia 2-5, erecto-patentia ovato vel ovato-oblonga acuta, sensim vel abrupte in foliaceas vaginas transeuntia, 9-19 cm. longa, 5-8 cm. lata; spica cylindrica, 10-20 cm. longa, sæpius dense multiflora, floribus in genere mediocribus erecto-patentibus; bracteæ herbaceæ reflexæ lanceolatae acuminatae, flores superantes; sepala lateralialia falcato-oblonga obtusa, 0·3-0·4 cm. longa, intermedio paullulo brevior obovato-oblonga; petala subconformia, breviora; labellum galeatum subglobosum, ore rotundato, marginibus erectis vel subreflexis; calcaribus patenti-deflexis filiformibus ovario subæquilongis; columna brevis, rostello lato rhomboideo, antice breviter denticulato, lobo stigmatifero oblongo declinato. (*Ex exemplari unico vivo, pluribusque exsiccatis*).—*S. densiflorum*, *Lindl. Gen. & Sp. Orch.* (1838), p. 340; *S. cassideum*, *Lindl. l. c. p.* 341; *S. eriostomum*, *Lindl. l. c. p.* 342; *S. shirensæ*, *Rolfe in Flor. Trop. Afr.* vii., 266, *fide R. Schlechter*.

**Hab.:** **South-eastern Region;** CAPE COLONY: near Van Staden's R., all below 60 met., *Drège*; hills near Port Elizabeth, fl. Oct., *R. Hallack!* (No. 5928 in my herb.); "*MacOwan*, 127 and *Schonland*, near Grahamstown, alt. 610 met., fl. Nov."; grassy slopes near Kei R. mouth, 60 met., fl. Dec., *H. G. Flanagan*, 262! NATAL; prope Inanda, fl. Sept., *Wood*, 1185.

**Plate 51.** Fig. 1, flower, front view; 2, ditto side view; 3, lip, front view; 4, sepals and petals, front view; 5, ditto, back view; 6, column, side view; 7, ditto, front view; 8, one of the pollinia.

An erect glabrous herb, 30-80 cm. high; stem straight, leafy; leaves 2-5, erect-spreading ovate or ovate-oblong acute, gradually or abruptly passing off into the leaf-like sheaths of the scape, 9-19 cm. long, 5-8 cm. wide; spike cylindrical, 10-20 cm. long, usually densely many-flowered, flowers erect-spreading among the medium-sized ones in the genus; bracts herbaceous reflexed lanceolate acuminate, exceeding the flowers; lateral sepals falcate-

oblong obtuse, 0·3-0·4 cm. long, intermediate a little shorter obovate-oblong; petals somewhat similar in shape, but shorter than the sepals; lip galeate subglobose, the mouth rounded, margins erect or somewhat reflexed, spurs spreading-deflexed filiform, about as long as the ovary; column short; rostellum broadly rhomboidal, shortly denticulate in front; stigmatiferous lobe oblong declinate.

Described from several dried specimens and a living plant sent from Port Elizabeth by Mr. Hallack, from which the drawing was made.



## TAB. 52.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrrium odorum**, *Sonder in "Linnæa" xix.* (1847), 86.—Herba erecta glabra, 25-45 cm. alta; caulis validus sæpius strictus foliosus; folia 3-5 erecto-patentia vel inferiora sæpe debiliter decumbentia ovata vel oblonga acuta per exsiccationem tenuiter membranacea, 8-20 cm. longa, 5-9 cm. lata, sensim in vaginas 1-2 transeuntia; spica cylindrica, 8-13 cm. longa, 2-2.5 cm. lata, multiflora, floribus erecto-patentibus, in genere submajoribus; bracteæ foliaceæ ovatæ reflexæ ovario longiores; sepala lateralía oblonga obtusa patentia 0.7 cm. longa, intermedio subconformi paullo breviora; petala sepalis conformia deflexa, 0.5 cm. longa; labellum galeatum, ore oblanceolato, marginibus reflexis erosulis, apice reflexo truncato, calcaribus pendulis filiformibus ovario longioribus; columnæ stipes brevinsculus; rostello rhomboideo obscure 3lobo, lobis lateralibus minutis dentiformibus, intermedio multo majori breviter unguiculato late rotundato; lobo stigmatifero oblongo truncato, ovario 0.6-0.7 cm. longo. (*Ex exempll. plur. vivis exsiccatisque.*)

*Hab. : South-western Region ;* CAPE COLONY : mostly under bushes, frequent round Cape Town, fl. Aug.-Sept., also sometimes lasting till Oct.-Dec., *Wolley-Dod*, 393! *Schlechter*, 57!, 1555! near Simonstown, *Wright*, 138.

**Plate 52.** Fig. 1, flower, front view; 2, column, front view; 3, ditto, side view.

An erect glabrous herb, 25-45 cm. high. Stem stout generally straight, leafy; leaves 3-5, erect-spreading or the lower sometimes weakly decumbent, ovate or oblong, acute, in the dried state thinly membranous, 8-20 cm. long, 5-9 cm wide, gradually passing off into the 1 or 2 sheaths; spike cylindrical, 8-13 cm. long, 2-2.5 cm. wide, many-flowered, flowers erect-spreading, among the rather larger ones in the genus; bracts herbaceous ovate reflexed longer than the ovary; lateral sepals spreading oblong obtuse, 0.7 cm. long, intermediate somewhat similar in shape, a little shorter, petals like the sepals in shape, deflexed, 0.5 cm. long; lip galeate,

mouth oblanceolate, margins reflexed erosulate, apex reflexed truncate, spurs pendulous filiform longer than the ovary; stipe of the column rather short; rostellum rhomboidal obscurely 3lobed, lateral lobes minute, tooth-like, intermediate much larger, shortly unguiculate, broadly rounded; stigmatiferous lobe oblong truncate; ovary 0.6-0.7 cm. long.

Described from several dried and living specimens.

The species is not very common but is seen about Cape Town every year, mostly under the shade of shrubs. The flowers have a strong and agreeable odour, and if the structure of the column be attended to the species can hardly be mistaken for any other.

## TAB. 53.

Tribe OPHRYDEÆ.

Sub-tribe. DISEÆ.

Genus SATYRIUM.

**Satyrium retusum**, *Lindley, in Gen. & Sp. Orch.* (1838), p. 351.—Herba glabra erecta humilis, 9-15 cm. alta; caulis subflexuosus foliatus; folia 3 erecto-patentia, inferiora cordato-ovata acuta, 1.5-3 cm. longa, 1-2 cm. lata, superiora ovato-lanceolata caulem basi amplexantia; spica cylindrica dense multiflora, 2.5-5 cm. longa, 1-1.7 cm. lata, floribus in genere inter minores patentibus; bracteæ erectæ vel patentes, foliaceæ rhomboideæ vel lanceolatæ acutæ; sepala oblonga obtusa patentia, inter se æquilongia, 0.3 cm. longa; petala lineari-lanceolata acuta, sepalis æquilongia; labellum galeato-concavum, ore subquadrato, apice porrecto, calcaribus retro-patentibus cylindricis obtusis, limbo brevioribus; columna subsessilis, rostello brevissimo, trilobulato, lobulis obtusis, lateralibus divaricatis longioribus, lobo stigmatifero sub-semi-orbiculari; pollinium caudiculæ insigniter elongatæ. (*Ex exemplari unico vivo pluribusque exsiccatis*).

**Hab. : South-western Region ;** CAPE COLONY : Table Mt., alt. 1066 met. fl. Feb., *R. Schlechter*, 305 b ! ; Zuurbraak, Swellendam, 120 met., fl. Oct. -- *Mally*, without number ; Langebergen near Swellendam, alt. 610 met., fl. Oct., *R. Schlechter*, 5669 ! near Knysna, fl. Sept., comm. *Le Sueur* (No. 5903 in my herb.).  
**South-eastern Region ;** Algoa Bay, *R. Hallack* !

**Plate 53.** Fig. 1, flower, front view, with bract ; 2, ditto, side view ; 3, sepals and petals, flattened out ; 4, lip ; 5, column, front view ; 6, ditto, side view ; 7, pollinium ; 8, bract, young.

An erect glabrous dwarf herb, 9-15 cm. high; stem subflexuous, leafy; leaves 3, erect-spreading, the lower cordate-ovate acute; the upper ovate lanceolate stem clasping at base, 1.5-3 cm. long; 1-2 cm. wide; spike cylindrical densely many flowered, 2.5-5 cm. long, 1-1.7 cm. wide, the flowers amongst the smaller ones in the genus, spreading; bracts erect or spreading, foliaceous, rhomboidal or lanceolate acute; sepals oblong, obtuse, spreading, equal in length, 0.3 cm. long; petals lanceolate, acute, as long as the sepals; lip galeate-concave, the mouth somewhat square,

apex projecting forward, the spurs spreading backward, cylindrical obtuse shorter than the limb; column subsessile, the rostellum very short, 3lobulate, lobes obtuse the lateral divaricate, the stigmatiferous lobe somewhat semi-orbicular; caudicles of the pollinia unusually long.

Described from several dried specimens, and a living one sent by Mr. Mally, from which the drawing was made.

## TABB. 54 & 55.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium carneum**, *R. Br. in Ait. Hort Kew, ed. ii.* (1813), *p.* 196.—Herba erecta robustissima, glabra, 40-70 cm. alta; caulis validus strictus, foliatus; folia 2 radicalia humistrata orbiculari-ovata, 10-15 cm. longa, caulina 3-4, erecto-patentia ovata-acuta, in vaginas 3-4 transeuntia 5-9 cm. longa; spica oblonga, subacuta, dense multiflora, 10-20 cm. longa, 5-6 cm. lata, floribus in genere maximis; bracteæ membranaceæ, erectæ concavæ late ovatæ acutæ, marginibus erosulatis, ovarium excedentes; sepala patentia lanceolata acuta 1.9 cm. longa; petala conformia sed latiora, paullo breviora; labellum galeatum, ore late oblongo, apice libero reflexo obtuso, calcaribus pendulis, filiformibus ovario fere dimidio longioribus; columnæ stipes elongatus; rostellum oblongum apice in rostrum obtusum productum, lobo stigmatifero lineari-oblongo, apice incurvo, rostello multo longiore; pollinium glandulæ obpyriformes. (*Ex exemplari unico vivo pluribusque exsiccatis.*)—*Bot. Mag. t.* 1512.

**Hab.:** South-western Region; CAPE COLONY: Noord Hoek, on the Cape Peninsula, alt. 305 met., fl. Sept., *Bolus*, 4831; frequent in sandy places between Cape Town and Muizenberg, fl. Sept.-Oct., alt. 30 met., *R. Schlechter*, and many collectors.

**Plate 54, 55.** Fig. 1, flower, front view; 2, ditto, back view; 3, sepals and petals connate; 4, column, side view; 5, ditto, front view; 6, pollinium; 7, rostellum; 8, section through the ovary—all variously magnified.

An erect very robust glabrous herb, 40-70 cm. high; stem stout straight leafy; leaves 2 radical appressed to the ground orbicular-ovate, 10-15 cm. long, cauline 3-4, erect-spreading ovate acute, passing off into the 3 or 4 sheaths, 5-9 cm. long; spike oblong, subacute densely many-flowered, 10-20 cm. long, 5-6 cm. wide, flowers the largest in the genus; bracts membranaceous erect concave broadly ovate acute, the margins erosulate, exceeding the ovary; sepals spreading lanceolate acute 1.9 cm. long; petals similar in shape but broader and a little shorter; lip galeate,

mouth broadly oblong, apex free reflexed obtuse, spurs pendulous filiform, nearly half as long again as the ovary; stipe of the column elongate; rostellum oblong, produced at the apex into an obtuse beak; stigmatiferous lobe linear-oblong, incurved at the apex, much longer than the rostellum; glands of the pollinia shaped like a pear reversed.

Described from one living specimen and several dried ones.

This is the largest of the *Satyrums*, and grows very abundantly in the low-lying sandy dunes near Muizenberg Retreat and Diep River.



## TAB. 56.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium erectum** Swartz, in *Kongl. Vetensk. Acad. Handl.* xxi. (1800) *p.* 216 *not of Lindl.* Herba erecta glabra robusta 20-35 cm. alta; caulis validus strictus, vaginis 3-4 foliaceis acutis vestitus; folia 2 radicalia humistrata cordato-orbicularia vel ovata acuta, 5-13 cm. longa; spica cylindrica sub-laxe multiflora, floribus roseis speciosis, in genere inter majores; bracteæ reflexæ lanceolatae vel oblongæ acutæ ovarium superantes; sepala cum petalis patenti-deflexa oblonga obtusissima basi angustata, sepala 1.5 cm. longa petalis paullo brevioribus; labellum galeatum, ore obovato, apice libero erecto vel reflexo obtuso, calcaribus pendulis filiformibus ovario sæpius brevioribus; columnæ stipes gracilis elongatus, lobo stigmatifero semi-orbiculari obtusissimo marginato; rostellum semi-orbiculare, antice minute tridentatum. (*Ex exemplari unico vivo pluribusque exsiccatis.*)—*Diplectrum erectum* Pers. *Syn. Pl.* 2, (1807), *p.* 509; *S. papillosum* Lindl. *Gen. Sp. Orch.* (1838), *p.* 341; *S. pustulatum* Lindl. *Bot. Reg.* (1840), *t.* 18.

**Hab:** **South-western Region;** CAPE COLONY: Slopes of Table Mt. above Orange Kloof fl. Dec. alt. 640 met. *R. Schlechter*, 8! clay soil, Tulbagh Kloof, alt. 150 met. fl. Oct. *Bolus* 5443; Hex R. alt. 518 met. fl. Oct. *Bolus* 13471, same place and date *W. Tyson* 646! Skurfdebergen, alt. 1000 met. fl. Oct, *R. Marloth* 3265! sandy soil Bokkeveld of Calvinia alt. 914 met. fl. Oct. *C. L. Leipoldt* 917!—NAMÁLAND MINOR, near Naries, alt. 1005 met., fl. Sept. *Bolus* 6612; Zwartberg Pass, district Prince Albert, alt. 1463 met.; fl. Dec. *Bolus* 11640.

**Plate 56.** Fig. 1, lip, front view; 2, sepals and petals; 3, column, front view; 4, ditto, side view; 5, section through the ovary; 6, one of the pollinia.

An erect robust glabrous herb, 20-35 cm. high; stem stout straight; clothed with 3-4 leaf-like acute sheaths; leaves radical two, appressed to the ground, cordate-orbicular, or ovate acute 5-13 cm. long; spike cylindrical somewhat laxly many-flowered, flowers rosy, handsome, among the larger ones in the genus;

bracts reflexed lanceolate, or oblong, acute longer than the ovary ; sepals and petals spreading deflexed, oblong very obtuse narrowed towards the base, sepals 1.5 cm. long, petals a little shorter ; lip galeate, the mouth obovate, apex free erect or reflexed obtuse, spurs pendulous filiform usually shorter than the ovary ; stipe of the column slender elongate, the stigmatiferous lobe semi-orbicular margined ; rostellum semi-orbicular in front, 3denticulate.

Described from several dried specimens and one living specimen from Tulbagh Kloof, my number 5443 from which the drawing was made. The true home of this pretty species is in the Tulbagh or neighbouring districts where it is fairly common, and it is a curious circumstance that it is very rare on the Cape Peninsula where I have never seen it and only know of its being once found growing there

## TAB. 57.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium princeps**, *Bolus in Hook. Icones Plant.* xviii. (1888), *tab.* 1729.—Herba erecta glabra robusta, 40-85 cm. alta; folia 2 radicalia ovato subrotunda acuta carnosum humistrata 10-22 cm. longa, 8-18 cm. lata; scapus rectus validus, vaginis inferioribus erecto-patentibus cucullatis acuminatis membranaceis apice subfoliaceis, superioribus sensim minoribus acutis omnino membranaceis; spica dense multiflora oblonga vel cylindrica, 10-25 cm. longa; bracteæ lanceolatæ acutæ membranaceæ multi-nerviæ, inferioribus reflexis floribus brevioribus, junioribus erectis; flores patentes subnutantes, laciniis perianthii alte solutis, in genere inter majores; sepala lateralibus oblique oblonga abrupte acuta patentia, 1.4 cm. longa, intermedio angustiore ligulato apice ampliato obtuso deflexo lateralibus æquilongis; petala lanceolata acuminata, e medio usque ad apicem serrulata, deflexa sepalis æquilongis; labellum galeatum, ore subrotundo, apice libero reflexo cuneato acuto serrulato, calcaribus filiformibus arcuatis ovario paullo longioribus, totum cum calc. 4 cm. longum; columna medio antice deflexo; rostellum subtriangulare, dente medio acuminato, basi utrinque tuberculatum; glandulæ lanceolatæ acuminatæ, apice approximatæ; lobus stigmatiferus rhomboideus, latior quam longus, superne marginatus emarginatusque; ovarium oblongum circ. 1.7 cm. longum. (*Ex exempl. plur. viv. sub. num.* 5929, *exsiccatisque*.—*S. membranaceum*, *N. E. Brown, ex Hook, f. in Bot. Mag.*, vol. xlv. (1890), *tab.* 7104, *not of Swartz*.)

**Hab.:** **South-western Region;** CAPE COLONY: Sea-shore, near Knysna, fl. Nov., *R. Schlechter*, 5906!—**South-eastern Region;** Sandy dunes near the sea-shore, St. Francis Bay, near Port Elizabeth, fl. Sept., *R. Hallack* (No. 5929 in my herb.); near Port Alfred, fl. Sept., *S. Schönland*.

**Plate 57.** Fig. 1, flower, front view; 2, ditto, side view; 3, sepals and petals, back view; 4, one of the side sepals; 5, one of the petals; 6, odd sepal; 7, 9, column, front view; 8, ditto, side view; 10, ditto, viewed from above; 11, section through the ovary—all variously magnified.

An erect glabrous robust herb, 40-85 cm. high; leaves 2, radical ovate-subrotund acute fleshy appressed to the ground, 10-22 cm. long, 8-18 cm. wide; scape straight stout, the lower sheaths erect-spreading cucullate membranous somewhat leaf-like at the apex, the upper ones gradually smaller acute altogether membranous; spike densely many-flowered oblong or cylindrical 10-25 cm. long; bracts lanceolate acute membranous many-nerved, the lower reflexed, shorter than the flowers, the younger erect; flowers spreading, somewhat nodding, among the large ones in the genus perianth segments very slightly connate; lateral sepals obliquely oblong, abruptly acute spreading, 1.4 cm. long, the intermediate narrower ligulate widened at the apex obtuse deflexed as long as the lateral sepals; petals lanceolate acuminate, serrulate from the middle to the apex, deflexed, as long as the sepals; lip galeate, the mouth somewhat rounded, apex free reflexed cuneate acute serrulate, spurs filiform arcuate, a little longer than the ovary, the whole including the spurs 4 cm. long; column deflexed at the middle in front; rostellum subtriangular, the intermediate tooth acuminate, tuberculate on each side at the base; glands lanceolate acuminate, approximate at the apex; stigmatiferous lobe rhomboidal, broader than long, margined above and emarginate at the apex; ovary oblong, about 1.7 cm. long.

Described from several living specimens sent by Mr. Hallack from near Port Elizabeth, and dried ones. It is one of the handsomest of the genus, with bright carmine flowers deepening to crimson on the back of the galea. It is most nearly allied to *S. membranaceum* and appears to occupy the same kind of wet sandy coastal downs; near Port Elizabeth the two species grow together, and Mr. N. E. Brown in *Hook Bot. Mag.* tab. 7104 regarded them as one and the same species; but they are very easily distinguished by the very different shape of the rostellum, one of the most important organs and one of the most trustworthy for diagnostic purposes in this large genus. In my view I am supported by the eminent South African botanist, *Dr. R. Schlechter* (see *Engl. Bot. Jahrb.*, vol. xxxi., p. 148) who has paid particular attention to South African Orchids, based upon the examination of very many living specimens during a period extending over many years.

## TAB. 58.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium membranaceum.** *Swartz in Kongl. Vetensk. Acad. Handl.* xxi. (1800) *p.* 216 Herba erecta glabra robusta, 20-40 cm. alta ; caulis validus strictus ; vaginis 5-9 membranaceis obtusis vel acutis dense vestitus ; folia 2, radicalia humistrata cordato-orbicularia obtusa, carnosae, 5-13 cm. longa, 5-11 cm. lata ; spica 8-18 cm. longa cylindrica subaxe multiflora, floribus in genere inter majores ; bracteae membranaceae reflexae ovato oblongae acutae, ovario longiores ; sepala lateralibus oblique oblonga obtusa, 1 cm. longa, intermedio oblongo paullo angustiore æquilongum ; petala lanceolata acuta e medio usque ad apicem minute crenulata sepalis æquilongis ; labellum galeatum, ore oblongo, apice libero erecto vel reflexo crenulato obtuso, calcaribus filiformibus, arcuato-pendulis, ovario duplo longioribus ; rostellum circuitu late ovatum, lobis lateralibus dentiformibus falcatis incurvis, intermedio multo majore, breviter unguiculato ampliato semi-orbiculare sinibus glanduliferis late distantibus, lobo stigmatifero cuneato sub-rhomboides, rostello æquilongum. (*Ex exempll. plur. vivis exsiccatisque*).

**Hab: South-western Region ;** CAPE COLONY: between Mossel Bay and Gouritz River, fl. Nov. *Burchell*, 6845 ; same locality, alt. 61 met. fl. Oct., *R. Schlechter* 1712 ; **South-eastern Region**, Albany Division ; near the Kowie R. fl. Oct. *Burchell* 4153 ; near Port Elizabeth, fl. Sept., *R. Hallack* ! (No. 5930 in my herb.) grassy hills near Grahamstown alt. 610 met. fl. Nov. *P. MacOwan* ; *Kaffraria Cooper* 384 ! ; Katberg near Stockenström fl. Nov. *Scully* 114 ! same locality, alt. 1524-1615 met. fl. Dec. *E. E. Galpin* 1686 !

**Plate 58.** Fig. 1, flower, front view ; 2, ditto, side view ; 3, one of the side sepals ; 4, odd sepal ; 5, one of the petals ; 6, column, side view ; 7, ditto, front view ; 8, rostellum and stigmatiferous lobe above it ; 9, one of the pollinia ; 10, section of the ovary—all more or less magnified.

An erect glabrous robust herb, 20-40 cm. high ; stem straight stout, closely covered with 5-9 membranous obtuse or acute



sheaths; leaves 2, radical, appressed to the ground, cordate-orbicular obtuse fleshy, 5-13 cm. long, 5-11 cm. wide; spike 8-18 cm. long, cylindrical somewhat laxly many-flowered, flowers among the larger ones in the genus; bracts membranaceous reflexed ovate-oblong acute, longer than the ovary; lateral sepals obliquely oblong-obtuse, 1 cm. long, intermediate oblong, a little narrower but equalling the lateral sepals in length; petals lanceolate acute, minutely crenulate from the middle to the apex, as long as the sepals; lip galeate, mouth oblong, apex free erect or reflexed crenulate obtuse, spurs filiform arcuate-pendulous, twice as long as the ovary; rostellum broadly ovate in outline, lateral lobes tooth-like falcate incurved, intermediate much larger, shortly clawed with a semi-orbicular blade, the gland-bearing sinuses widely apart; stigmatiferous lobe cuneate and somewhat rhomboidal, as long as the rostellum.

Described from several living and dried specimens. The drawing was made from one of several plants sent to me by Mr. Hallack from Port Elizabeth.



## TAB. 59.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium acuminatum**, *Lindley in Gen. & Sp. Orch.* (1838), p. 339.—Herba erecta robusta glabra, 25-55 cm. alta; folia 2 radicalia humistrata, cordato-orbicularia vel elliptica acuta carnosae. 6-12 cm. longa; scapus strictus, vaginis 3-5 foliaceis, erecto-patentibus acuminatis imbricatis vestitus; spica cylindrica tenuis, 9-22 cm. longa, 2-3 cm. diam., subaxe multiflora, floribus in genere submajoribus; bracteae oblongo-lanceolatae acuminatae herbaceae reflexae flores saepius superantes; sepala patentia obovato-oblonga obtusa, intermedio angustiore 0·8-1 cm. longa; petala subconformia; labellum galeatum, ore late oblongo, apice libero obtuso crispo, calcaribus pendulis filiformibus, ovario longioribus; columnae stipes incurvus, lobo stigmatifero cuneato-oblongo marginato aequilongus; rostellum circuitu obovatum, 3lobum, lateralibus dentiformibus, intermedio multo majore, breviter unguiculato semi-orbiculari, glandulis pollinium (an semper?) hippocrepiiformibus. (*Ex exempll. unico vivo, pluribusque exsiccatis.*)

*Hab*: **South-western Region**; CAPE COLONY: Mt. slopes Langebergen, near Swellendam and Riversdale, alt. 305-762 met., fl. Dec., *R. Schlechter*, 2761; Corente R., distr. Riversdale, fl. Dec., *Dr. Jno. Muir*, No. 5341 *in herb. Galpin!*; near Knysna, fl. Oct., *G. W. B. Steytler!* (No. 5927 in my herb.); hills near Grahamstown, alt. 610 met., *MacOrwan*, 513, same locality, *E. Galpin*, 302, and other collectors; Mt. slopes, Amatola Mts. *Drège*.

**Plate 59.** Fig. 1, flower, front view; 2, ditto, back view; 3, sepals and petals, from above; 4, ditto, from below; 5, column, side view; 6, ditto, front view; 7, rostellum and stigmatiferous lobe; 8, one of the pollinia; 9, section through the ovary—all variously enlarged.

An erect robust glabrous herb, 25-55 cm. high; leaves 2, radical appressed to the ground, cordate-orbicular or elliptical acute fleshy, 6-12 cm. long; scape straight, clothed with 3-5

leaf-like erect-spreading acuminate imbricating sheaths; spike cylindrical slender, 9-22 cm. long, 2-3 cm. diam., somewhat laxly many-flowered, flowers among the rather larger ones in the genus; bracts oblong lanceolate acuminate herbaceous reflexed usually exceeding the flowers; sepals spreading obovate-oblong obtuse, the intermediate narrower, 0·8-1 cm. long; petals somewhat similar in shape; lip galeate, mouth broadly oblong, apex free, obtuse crisped, spurs pendulous filiform longer than the ovary; stipe of the column incurved; as long as the cuneate-oblong margined stigmatiferous lobe; rostellum obovate in outline 3lobed, lateral lobes tooth-like, intermediate much larger, shortly clawed with a semi-orbicular limb; glands of the pollinia horse-shoe shaped.

Described from several dried specimens and a living one sent by Mr. Steytler from Knysna—from which the drawing was made.

## TAB. 60.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrrium candidum**, *Lindley, Bot. Reg.* (1838), *Misc. No.* 153.—Herba erecta robusta glabra, 30-65 cm. alta; folia 2, radicalia humistrata cordato-orbicularia subobtusa, 9-13 cm. longa; scapus strictus, vaginis 3-4, foliaceis utriculato-inflatis apice patentibus acutis vestitus; bracteæ herbaceæ lanceolato-oblongæ acutæ reflexæ, flores æquantes vel superantes; spica oblonga vel cylindrica, 10-20 cm. longa, 3-4·5 cm. lata, sublaxe multiflora, floribus erecto-patentibus, in genere submajoribus; sepala lateraliter oblique oblonga obtusa patentia, intermedio ligulato deflexa omnia 1 cm. longa; petala lineari-oblonga decurva, sepalis paullo breviora; labellum galeatum, ore subrotundo, apice libero reflexo obtuso, calcaribus pendulis filiformibus ovarium dimidio superantibus; columnæ stipes elongatus; rostellum rhomboideum antice subæqualiter 3dentatum; lobus stigmatiferus rostello latior, semi-orbicularis, margine crenulato. (*Ex exempl. unico vivo pluribusque exsiccatis*).—*S. utriculatum*, *Sond. in Linnæa* xix. (1847), 84.

**Hab. : South-western Region ;** CAPE COLONY: Sandy dunes between Cape Town and Wynberg, fl. Sept.-Oct., *Ecklon & Zeyher*, 1558; *Bolus*, 4331; *Herb. Norm. Aust.-Afr.*, 158; *R. Schlechter*. Mountain slopes near Genadendal, alt. 610-915 met., fl. Oct. *Drège*.

**Plate 60.** Fig. 1, flower, front view; 2, column, oblique view; 3, ditto, front view; 4, section through the ovary.

An erect robust glabrous herb, 30-65 cm. high; leaves 2, radical appressed to the ground, cordate-orbicular subobtuse, 9-13 cm. long; scape straight, clothed with 3-4 foliaceous inflated acute sheaths spreading at the apex; bracts herbaceous lanceolate-oblong acute reflexed, equalling or exceeding the flowers; spike oblong or cylindrical, 10-20 cm. long, 3-4·5 cm. wide, somewhat laxly many-flowered, flowers erect-spreading, among the medium-sized in the genus; lateral sepals obliquely oblong obtuse spreading, intermediate ligulate deflexed, all 1 cm. long; petals linear-

oblong decurved, a little shorter than the sepals ; lip galeate, the mouth somewhat rounded, apex free reflexed obtuse, spurs pendulous filiform, half as long again as the ovary ; stipe of the column elongate ; rostellum rhomboidal, subequally 3dentate in front ; stigmatiferous lobe broader than the rostellum, semi-orbicular, the margin crenulate.

Described from a living specimen collected near Rondebosch, from which the drawing was made, and several dried specimens.

## TAB. 61.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium trinerve**, *Lindley, Gen. & Sp. Orch.* (1838), *p.* 344.  
—Herba erecta subrobusta vel interdum gracilis, 20-53 cm. alta; caulis strictus foliatus; folia producta 2-3, erecta anguste lanceolata acuta vel acuminata trinervia carinata, supremis vaginæ formibus subobtusis, 5-15 cm. longa; spica oblonga dense multiflora, angulis omnibus scabris, 5-10 cm. longa, 1.5-3.5 cm. lata; flores erecto-patentes, in genere inter minores albi; bracteæ late patentes, basi foliaceæ virides apice albæ, lanceolatæ acuminatæ, floribus multo superantes; sepala lateralìa falcato-oblonga patentidcurva obtusa, 0.3-0.5 cm. longa, intermedio ligulato obtusissimo æquilongò; petala sepalo intermedio subconformia æquilongaque vel paullo breviora; labellum galeatum, apice libero porrecto vel erecto, calcaribus conicis pendulis abbreviatis ovario fere duplo brevioribus; columnæ stipes elongatus gracilis incurvus; rostellum transverse oblongum, antice obscure tridenticulatum, intermedio bifido; lobus stigmatiferus subrhomboideus, apice rotundatus, rostello duplo longior; ovarium scaberulum. (*Ex exempll. plur. vivis exsiccatisque.*)—*S. leucocomos*, *Reichb. f. in Flora*, 48 (1865), *p.* 182; *S. Atherstonei*, *Reichb. f. in Flora* (1881), *p.* 328; *S. longebracteatum*, *Rolfe, in Bot. Soc. Brot.* vii. (1889), *p.* 238; *S. Mechowianum*, *Kraenzlin in Engl. Bot. Jahrb.*, vol. xvii. (1893), *p.* 65; *S. triphyllum*, *Kraenzl., l.c. vol.* xxiv. (1898), *p.* 504.; *S. monopetalum*, *Kraenzl. l.c. vol.* xxiv. (1898), *p.* 504; *S. Schinzii*, *Dur. et Kränzl. in Orch. Gen. Sp.* i. (1899), *p.* 696, *partly*; *S. zombense*, *Rolfe in Flor. Trop. Afr.* vii. (1898), *p.* 273; *S. occultum*, *Rolfe, l.c.* vii. (1898), *p.* 273.

**Hab.:** **South-eastern Region**; CAPE COLONY: Dohne Mt., near Stutterheim, alt. 1370 met., fl. Jan., *Bolus*, 13463!; Pondoland, alt. 60 met., fl. Oct., *IV. Tyson*, 2608! St. John's R. Mts., 340 met., fl. Feb., *Bolus*, 10298; same locality, fl. Dec., *E. E. Galpin*, 3420!—NATAL: Clairmont, near Durban, alt. 46 met., fl. Dec., *Wood*, 1599; near Greytown, alt. 922-1620 met., fl. Jan., *Wood*, 5890; SWAZIELAND: Vlei at Embabane, fl. Jan., *J. Burtt Davy*, 2841.—TRANS-VAAL: Marshes, Klein Olifants R., alt. 1525

met., fl. Dec., *R. Schlechter*, 4038 ! Witbank district, Middelburg, fl. Dec., *D. F. Gilfillan* (No. 7243 in herb. Galpin !); Mac-a-Mac, near Lydenburg, *Mudd* ! (No. 5934 in my herb.)

**Plate 61.** Fig. 1, flower, front view ; 2, ditto, side view ; 3, column, front view ; 4, ditto, side view ; 5, sepals and petals ; 6, one of the pollinia.

An erect, rather robust, or sometimes slender herb ; 20-53 cm. high ; stem straight leafy ; produced leaves 2-3, erect narrow lanceolate, acute or acuminate, 3 nerved carinate, the uppermost sheath-like subobtuse, 5-15 cm. long ; spike oblong densely many-flowered, all the angles scabrid, 5-10 cm. long, 1.5-3.5 cm. broad ; flowers erect-spreading, among the smaller ones in the genus, white ; bracts widely spreading, green and leaf-like at base, white towards the apex, lanceolate acuminate, much exceeding the flowers ; lateral sepals falcate-oblong, spreading decurved obtuse, 0.3-0.5 cm. long, the intermediate ligulate very obtuse, equally long ; petals same shape and about as long ; lip galeate, apex free porrect, or erect, spurs conical pendulous abbreviate, about half as long as the ovary ; stipe of the column elongate, slender incurved ; rostellum transversely oblong, obscurely 3denticulate at the apex, intermediate tooth bifid ; lobus stigmatiferus sub-rhomboidal rotundate at the apex, twice as long as the rostellum ; ovary scaberulous.

Described from several living and dried specimens.

This species is widely distributed in the eastern part of S. Africa, but is markedly absent in the western. It may usually be recognised by its large wide-spreading pale bracts and white flowers.



## TAB. 62.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SATYRIUM.

**Satyrium microrhynchum**, Schlechter, in *Engl. Bot. Jahrb.*, vol. xx. (1895), *Beibl.*, 50, p. 14.—Herba erecta humilis, 20-22 cm. alta; folia producta 2, subopposita erecto-patentia ovata acuminata, 6-9 cm. longa, 3-3.5 cm. lata; scapus strictus, vaginis 2, acuminatis vestitus; spica cylindrica dense multiflora, floribus flavo-viridescentibus, in genere minoribus, 6-8 cm. longa, 1.5-2 cm. diam.; bracteæ erectæ, apicem versus patentēs vel reflexæ, lanceolatae acuminatae, flores superantes; sepala petalaeque deflexa, oblonga obtusa, basi pilosa, sepalis lateralibus subobliquis 0.4-0.5 cm. longis, petalis paullo brevioribus angustioribusque; labellum galeatum, ore rotundato, apice porrecto obtuso, ecalcaratum; columnæ stipes gracilis elongatus; rostellum obcuneatum, antice minute 3 denticulatum; lobus stigmatiferus transverse ellipticus, rostello longior. (*Ex exempl. unico vivo altero exsiccatoque.*)

**Hab.:** **South-eastern Region;** on the summit of the Mont-aux-Sources, alt. 3048 met., fl. Feb. (1893), Justus Thode (No. 2102 in herb. Schlechter!); in declivibus montis Kwen-Kwe prope Gatsberg in ditone Maclear, alt. circ. 1644 met., *H. G. Flanagan* (No. 8702 in my herb. spec. unico invento, a me in statu vivente depicto).

**Plate 62.** Fig. 1, flower, front view; 2, ditto, side view; 3, sepals and petals; 4, column, front view; 5, ditto, side view; 6, rostellum; 7, one of the pollinia.

An erect dwarf herb, 20-22 cm. high; produced leaves 2 sub-opposite, erect-spreading ovate, acuminate; 6-9 cm. long, 3-3.5 cm. wide; scape straight, clothed with 2 acuminate sheaths; spike cylindrical, densely many-flowered; flowers yellowish green among the smaller ones in the genus, 6-8 cm. long, 1.5-2 cm. diam.; bracts erect-spreading or reflexed at the apex, lanceolate acuminate, exceeding the flowers; sepals and petals deflexed, oblong, obtuse pilose at the base, lateral sepals suboblique 0.4-0.5 cm. long, petals a little shorter and narrower; lip galeate apex

porrect obtuse, ecalcarate ; stipe of the column slender, elongate ;  
rostellum obcuneate, minutely tridenticulate ; stigmatiferous lobe  
transversely elliptical.

Described from a living specimen collected by Mr. Flanagan  
as above, from which also the drawing was made, and from  
another dried specimen of Thode, kindly lent by Dr. Schlechter.

## TAB. 63.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa uniflora**, *Bergius Descr. Plant. e Cap. B. Spec.* (1767), 348, t. 4, f. 7.—Herba robusta glabra, decumbens vel rarius suberecta 25-60 cm. alta; caulis strictus herbaceus, foliosus; folia 5-7, erecto-patentia decurva lineari-lanceolata acuta vel acuminata, 8-15 cm. longa, 1-1.5 cm. lata, sensim in vaginas 2-4 herbaceas transeuntia; racemus laxe 1-3 florus, floribus in genere maximis, speciosissimis, erectis; bracteæ lanceolatae acuminatae erectae ovario longiores; sepala lateralalia petaloidea colorata ovato-oblonga acuminata patentia, 4-6 cm. longa, medio 2-3 cm. lata, sepalo impari suberecto galeato ovato vel suborbiculari acuto, basi in calcar infundibuliforme rectum dependens, 0.8-1.3 cm. longum productum; petala resupinata falcato-oblonga obtusa, marginibus posterioribus sub anthera inflexis, 2.5 cm. longa; labellum lineari-lanceolatum acuminatum deflexum, 2-2.5 cm. longum; rostellum erectum arcuato-incurvum, brachiis glanduliferis divaricatis abbreviatis lobo intermedio resupinato; anthera resupinato linearis apiculata, connectivo angusto loculis paullulo longiore; stigma umbonatum trilobum. (*Ex exempll. plur. vivis exsiccatisque.*)—*D. grandiflora*, *Linn. fl. Suppl.* (1781), p. 406.

**Hab:** **South-western Region**; CAPE COLONY: margins of streams, which frequently become dry in the summer; on Table Mt. near Cape Town, mostly on the summit, alt. from about 335 to 1000 met., fl. Jan.-March, many collectors; also in similar spots on Winterhoek's Mountain, near Tulbagh, alt. 610-914 met. *Drège*; Mts. about Du Toit's Kloof, alt. 900-1219 met. *Drège*; Cederberg Mts., near Clanwilliam, up to 1525 met. *Leipoldt*, 602!

**Plate 63.** Fig. 1, odd sepal, side view; 2, flower, sepals and lip removed, side view; 3, ditto, back view; 4, 4, petals; 5, column, front view; 6, rostellum with stigma; 7, pollinarium.

A robust glabrous decumbent, or more rarely suberect, herb 25-60 cm. high; stem straight herbaceous leafy; leaves 5-7, erect-spreading decurved linear-lanceolate acute or acuminate, 8-15 cm.

long, 1-1.5 cm. wide, gradually passing off into 2-4 herbaceous sheaths; raceme laxly 1-3 flowered, flowers the largest in the genus and very handsome, erect; bracts lanceolate acuminate erect, longer than the ovary; lateral sepals petaloid coloured ovate-oblong acuminate spreading, 4-6 cm. long, 2-3 cm. wide in the middle; odd sepal suberect galeate ovate or suborbicular acute, produced at base into a dependent straight infundibuliform spur 0.8-1.3 cm. long; petals resupinate falcate-oblong obtuse, the posterior margins bent in under the anther, 2.5 cm. long; lip linear-lanceolate acuminate deflexed, 2-2.5 cm. long; rostellum erect arcuate-incurved, the gland-bearing arms divaricate abbreviated, intermediate lobe resupinate; anther resupinate linear apiculate, the connective narrow, a little longer than the cells; stigma umbonate, 3lobed.

Described from several living and dried specimens. The colour of the flower varies somewhat to orange or yellow tints.

## TAB. 64.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa rosea**, *Lindley in Gen. & Sp. Orch.* (1838), 350.—Herba humilis glabra erecta vel subdecumbens, 7·5-15 cm. alta; caulis subflexuosus gracilis 2-3 foliatus; folia radicalia 2 patentia ovato-oblonga acuta subcoriacea 3-6 cm. longa, 1·5-2·5 cm. lata, subtus colorata, in vaginas foliaceas acuminatas transeuntia; racemus subcorymbosus laxe 4-10 florus; bracteæ erectæ lanceolatæ acutæ ovarium paullo superantes amplexantesque; sepala lateraliter porrecta oblonga obtusa 1-1·2 cm. longa; impar cucullatum depressum basi in saccum latum conicum productum; petala subtriangularia erecta obtusa postice auriculis incurvis subcarnosis aucta; labellum porrectum linguæforme basin versus obtuse lobulatum 0·7 cm. longum; rostellum breve, stigmati longius. (*Ex exempl. vivo, pluribus exsiccatisque.*)

**Hab. : South-western Region ;** CAPE COLONY: In clefts of rocks in the mountains of the Cape Peninsula, alt. 425-1000 met., fl. Oct.-Dec., *Bolus*, in herb. *Norm. Aust. Afr.* 319, *R. Schlechter*, 154! extends eastward to the Houw Hoek Mts., district of Caledon, and probably further.

A dwarf glabrous herb, erect or subdecumbent, 7·5-15 cm. high; stem subflexuous slender, 2-3 leaved; radical leaves 2, spreading ovate-oblong acute, somewhat coriaceous 3-6 cm. long, 1·5-2·5 cm. wide, coloured a deep maroon beneath; leaves passing gradually into foliaceous acuminate sheaths; raceme somewhat corymbose laxly 4-10 flowered; bracts erect lanceolate acute, a little exceeding the ovary and clasping it; lateral sepals porrect oblong obtuse, 1-1·2 cm. long; odd sepal cucullate depressed from above, at the base produced into a broad conical sac; petals subtriangular obtuse or subacute, produced behind into two incurved somewhat fleshy ears, 0·6 cm. long; lip porrect, tongue-shaped, obtusely lobulate towards the base, 0·7 cm. long; rostellum short, longer than the stigma.

Described and drawn from one living specimen and several dried, collected on Table Mt.





## TAB. 65.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Cooperi**, *Reichenbach fil in Flora* (1881), *p.* 328; *Hook f. Bot. Mag.*, *t.* 7256.—Herba erecta glabra robusta, speciosa 30-60 cm. alta; folia 4-5, e gemma distincta radicalia erecta vel erecto-patentia lineari-lanceolata vel interdum lanceolata, acuminata, 10-40 cm. longa, 2-4 cm. lata; scapus strictus validus, vaginis foliaceis erecto-patentibus lanceolatis acuminatis laxè amplexantibus dense vestitus; spica cylindrica dense multiflora, 10-25 cm. longa, floribus patentibus; bracteæ herbaceæ vel submembranaceæ lanceolatæ acuminatæ, flores sæpius excedentes; sepala lateraliter deflexa oblongo-ovata apiculata, 1·3-1·8 cm. longa, impari galeato subinfundibuliformi, ore oblongo, acuto sæpe apiculato, in calcar adscendens filiforme ovario longius producto; petala sub galea suberecta abscondita oblique oblonga, carnosula 0·8-1 cm. longa; labellum deflexum ovatum unguiculatum obtusum 1·3 cm. longum; rostellum suberectum bifidum, brachiis glanduliferis parallelis; anthera resupinata vel pendula; stigma magnum umbonatum, obscure 3lobum. (*Ex exempl. unico vivo, pluribusque exsiccatis.*)—*D. Scullyi*, *Bolus in Journ. Linn. Soc.*, *vol.* xxii (1887), *p.* 70; *D. Thodei*, *Krzt. Orch. Gen. Sp.* 1 (1900), *p.* 796.

**Hab :** **South-eastern Region ;** CAPE COLONY: grassy hills near Matatiele, Griqualand East, alt. 1520 met., fl. Jan., *W. Tyson*, 1606 !—NATAL: Van Reenen, alt. 1676 met., fl. Jan., *Wood*, 8751 ! ORANGE R. COLONY: Bester's Vallei, alt. 1650 met., fl. Jan., *Bolus*, 8292.—SWAZIELAND: grassy places between Swazieland and Carolina, alt. 2070 met., fl. Jan.—TRANS-VAAL: marshy ground near Middelburg, alt. 1490 met., *R. Schlechter*, fl. Dec., 4104 !

**Plate 65.** Fig. 1, flower with sepals and near petal removed, side view; 2, one of the sepals; 3, column, petals and lip, viewed from above; 4, one of the petals; 5, column; 6, one of the pollinia.

**Var. Scullyi**, *Schlechter in Engl. Bot. Jahrb.*, *vol.* xxxi. (1902), *p.* 236; differs from the typical form by its much more slender habit, by its few-flowered raceme, and by its narrower labellum. Found by *Mr. W. C. Scully*, No. 195 ! in a bog upon Menziesberg, near Stockenström, alt. not stated, fl. Jan.

An erect glabrous robust herb, 30-60 cm. high; leaves, 4-5 springing from a distinct bud, radical, erect or erect-spreading, linear-lanceolate or sometimes lanceolate acuminate 10-40 cm. long, 2-4 cm. wide; scape stout, straight, clothed with several leafy erect-spreading lanceolate sheaths; spike cylindrical densely many-flowered, 10-25 cm. long, flowers spreading; bracts herbaceous or sub-membranous lanceolate-acuminate mostly longer than the flowers; lateral sepals deflexed oblong-ovate apiculate 1.3-1.8 cm. long; the odd sepal galeate somewhat funnel-shaped, mouth oblong acute mostly apiculate, produced into an ascending filiform spur longer than the ovary; petals suberect, hidden under the galea, obliquely oblong, somewhat fleshy, 0.8-1 cm. long; lip deflexed, ovate unguiculate obtuse 1.3 cm. long; rostellum suberect bifid, the gland-bearing arms parallel; anther resupinate or pendulous; stigma large, bossy, obscurely 3lobed.

Described from several dried specimens and a living one, from Bester's Vlei, from which the drawing was made.

## TAB. 66.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa bivalvata**, *Dur. & Schinz in Conspect. Flor. Afr.*, vol. v. (1895), 100.—Herba erecta glabra 10-35 cm. alta; caulis strictus vel subflexuosus; folia radicalia 4-8 vel plura erecta lineari-lanceolata acuminata, 2-7 cm. longa, caulinis in vaginas acuminatas transeuntibus; racemus corymbosus, 3-15-florus, 2-6 cm. diametro; bracteæ erectæ herbaceæ lanceolatae acutæ ovario sæpius breviores; sepala lateralalia patentia ovato-oblonga obtusiuscula sub apice mucronata, 1.1-1.4 cm. longa; impari horizontali resupinato cucullato, apicem versus compresso carinatoque, basi angustato ecalcarato; petala resupinata e basi unguiculata oblonga, apice incurva lacerato-dentata, 0.8-1 cm. longa; labellum posticum porrectum subulatum acutum vel acuminatum, basin versus bilobulatum breviter unguiculatum, petalis æquilongum; rostellum apice bifidum, lobo intermedio resupinato, lateralibus glanduliferis brevior; anthera sub petala subsecta. (*Ex exempl. unico pluribusque exsiccatis.*)—*Ophrys bivalvata*, *Linn. fil. Suppl.* (1781), p. 403; *Serapias melaleuca*, *Thunb. Prodr. Pl. Cap.* (1794), p. 3; *Penthea melaleuca*, *Lindl., Gen. & Sp. Orch.* (1836), 361; *Disa melaleuca*, *Swartz in Kongl. Vet. Acad. Handl.*, vol. xxi. (1800), p. 213; *Harv. Thes. Cap.*, vol. i. (1859), p. 53, tab. 84.

**Hab.:** **South-western Region**; Mts. in the Cape Peninsula, frequent, in moist grassy places, 396-1005 met., fl. Dec., *Burchell*, 651; *Bolus*, 4208; *R. Schlechter*, 148; *Wolley-Dod* 2095; and many other collectors. Witsenberg and Schurfdeberg, fl. Dec., *Zeyher*; Du Toit's Kloof, alt. 914-1219 met., *Drège*; foot of the Langebergen, fl. Dec., *Burchell*, 6855; Corente R. farm, dist. Riversdale, fl. Dec., *Dr. Jno. Muir!* (No. 5347 in herb. Galpin!); Storms R. dist., Humansdorp, alt. 61 met., fl. Nov., *R. Schlechter*.

**Plate 66.** Fig. 1, flower, side view; 2, ditto, viewed from above; 3, odd sepal; 4, one of the petals; 5, lip; 6, column with petals; 7, column, side view.

An erect glabrous herb, 10-35 cm. high; stem straight or subflexuous; radical leaves 4-8 or more, erect linear-lanceolate

acuminate, 2-7 cm. long, cauline passing off into acuminate sheaths; raceme corymbose, 3-15 flowered, 2-6 cm. in diameter; bracts erect herbaceous lanceolate acute, usually shorter than the ovary; lateral sepals spreading ovate-oblong, rather obtuse mucronate below the apex, 1.1-1.4 cm. long; odd sepal horizontal resupinate cucullate, towards the apex compressed and keeled, narrowed at the base, ecalcarate: petals resupinate unguiculate with an oblong lamina, incurved and lacerate-dentate at the apex, 0.8-1 cm. long; lip posticous porrect subulate acute or acuminate, bilobulate near the base, shortly unguiculate, as long as the petals; rostellum 3lobed, the middle resupinate, shorter than the lateral gland-bearing lobes; stigma large.

Described from several dried specimens and a living one collected on the Cape Peninsula, from which the drawing was made.

## TAB. 67.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Marlothii**, *Bolus in Trans. S.A. Philos. Soc.*, vol. xvi., part 2 (1905), p. 148.—Herba erecta glabra 14-25 cm. alta; folia radicalia plura, oblanceolata acuta, basi longe membranaceo-vaginantia, 3-5 cm. longa, parte latiore 0·8-1·1 cm. lata; caulis gracilis substrictus, vaginis 4-7 erectis herbaceis marginibus submembranaceis caulem arcte amplexantibus vestitus; racemus sæpius laxissime 2-5-florus, pedicellis gracilibus elongatis; bractee vaginis conformes, sæpe marginibus coloratis, ovario multo breviores; flores patentes in sectione mediocres, saturate rosei, galea petalisque maculis purpureis notatis; sepalia lateralalia patentia late oblonga obtusissima sub apice mucronulata, 0·9-1 cm. longa; sepalum impar posticum galeatum, oris ambitu obovato acutiusculo, sepalis lateralibus æquilongum, dorso in calcar patens vel subadscendens nullo modo deflexum substrictum vel leviter recurvum, 1·4-1·9 cm. longum, productum; petala erecta sub galea semi-abscondita, late oblonga obtusissima, basi postice angulo recto abrupte geniculato-inflexo rostello subduplo longiora; labellum porrectum, spathulato-oblongum, subacutum, circiter 0·9 cm. longum; anthera valde resupinata subreflexave, ovario parallela; rostellum erectum, oblongum, glandulis pollinium subdistantibus, coronatum; ovarium gracile cylindricum cum pedicello, ad 2 cm. longum. (*Ex exemplari unico vivo, paucisque exsiccatis.*)

**Hab : South-western Region ;** CAPE COLONY : marshy places Zand-drifts Kloof, below the Matroos-berg in the Hex River Mts. distr. Worcester, alt. 1000 met., fl. Jan., *Dr. R. Marloth*, 2378; same place or near it, approx. alt. 1400 met., fl. Jan., *Alfred Bolus* (No. 6371 in my herb.); Koude Bokkeveld, Skurfsdebergen, near Klyn Vley, alt. circ. 1800 met., fl. Jan., *Dr. R. Schlechter*, 10204!

**Plate 67.** Fig. 1, flower, front view; 2, ditto, side view; 3, one of the sepals; 4, odd sepal, front view; 5, ditto, side view; 6, flower, the sepals removed; 7, ditto, the near petal removed, side view; 8, one of the petals; 9, lip; 10, column; 11, one of the pollinia.



An erect glabrous herb, 14-25 cm. high; leaves radical, several; oblanceolate acute membranous and sheathing at base, 3-5 cm. long, in the broader part 0·8-1·1 cm. wide; stem slender, somewhat straight, clothed with 4-7 erect herbaceous sheaths, with somewhat membranous margins, closely embracing the stem; raceme usually very laxly 2-5 flowered, the pedicels slender elongate; bracts like the sheaths often coloured on the margins, much shorter than the ovary; flowers spreading, among the medium-sized in the genus, deep carmine, galea and petals purple spotted; lateral sepals spreading broadly oblong, very obtuse, mucronulate below the apex, 0·9-1 cm. long; odd sepal posticous galeate, outline of the mouth obovate, rather acute, as long as the lateral sepals, produced at the back into a spreading or somewhat ascending, in no way deflexed, nearly straight or slightly incurved, spur 1·4-1·9 cm. long; petals erect, half hidden beneath the galea, broadly oblong very obtuse, at the base abruptly bent upward at a right angle, and about twice as long as the rostellum; lip projecting forward spathulate-oblong, subacute, about 0·9 cm. long; anther resupinate or subreflexed, parallel with the ovary; rostellum erect oblong, crowned with the somewhat distant glands of the pollinia; ovary slender cylindrical, together with the pedicel, about 2 cm. long.

Described from a few dried specimens and one living, from which the drawing was made.

A very distinct species, and somewhat rare, since up to the present it has only been recorded as found by three collectors.



## TAB. 68.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa filicornis**, *Thunberg, Flor. Cap. ed.* 1823, 361. —Herba humilis erecta tenella, glabra 10-20 cm. alta ; folia radicalia plura erecta vel suberecta rosulata, anguste linearia acuta, 1·5-4 cm. longa, basi dilatata membranacea vaginantia ; caulis sæpius strictus rarius subflexuosus, vaginis foliaceis pluribus basi dilatatis caulem amplectentibus vestitus ; racemus interdum corymboideus laxe 3-8 florus ; bracteæ erectæ lanceolatae acuminatae ovario subæquilongæ vel paullo longiores ; sepala lateralìa patentia oblonga, sub apice mucronulata, 1·6 cm. longa ; sepalum impar erectum concavum e basi unguiculata orbiculare lateralibus æquilongum ; petala erecta lineari-falcata obtusa, 1-1·1 cm. longa ; labellum deflexum lineari-setaceum, 0·8-1 cm. longum ; rostellum erectum 3fidum, brachiis glanduliferis divaricatis, intermedio triangulari erecto ; anthera adscendens, appendice petaloidea alæformi, marginibus crispulatis, ornata ; ovarium cylindricum, cum pedicello 1·5 cm. longum. (*Ex exempll. pluribus vivis exsiccatisque.*)—*Orchis filicornis*, *Linn. f. Suppl.* (1781), 400 ; *Disa patens*, *Swartz. in Kongl. Vet. Acad. Handl.* xxi. (1800), p. 214, *not of Thunberg* ; *Penthea filicornis*. *Lindl., Gen. & Sp. Orch.* (1838), p. 361. *P. reflexa* *Lindl. l.c.* *Disa reflexa*, *Reichb. f. in Flora* (1865), p. 182.

**Hab. : South-western Region ;** Cape Peninsula, on the hills and mountains, alt. 335-762 met., chiefly in moist places, frequent from Oct.-Dec., many collectors ; Caledon district, Sir Lowry's Pass, *Drège* ; near Grabouw, *C. H. Grisbrook* (No. 6885 in my herb.) between Villiersdorp and French Hoek, *Bolus*, 5276 ! near Riversdale, *R. Schlechter*, 1909, near George, alt., 210 met., Nov. *id.* 5865 ; Montagu Pass, 640 met., fl. Jan., *Bolus*, 13161 ; on Zwartberg Pass, dist. Prince Albert, 1524 met., fl. Dec., *Bolus*, 11643 ; also extends (fide Schlechter) eastward as far as Plettenberg Bay ; and northwards as far as Tulbagh.

**Plate 68.** Fig. 1, perianth segments ; 2, odd sepal ; 3, column, front view ; 4, ditto, side view ; 5, one of the pollinia.

An erect slender dwarf glabrous herb, 10-20 cm. high ; leaves radical, several erect or suberect rosulate, narrow-linear acute, 1.5-4 cm. long, membranous dilated and sheathing at base ; stem usually straight, more rarely subflexuous, clothed with several leaf-like sheaths dilated at base and clasping the stem ; raceme sometimes corymbose laxly 3-8flowered ; bracts erect lanceolate acuminate, about as long as the ovary, or a little longer ; lateral sepals spreading oblong, mucronulate below the apex, 1.6 cm. long ; odd sepal erect concave orbicular from an unguiculate base, as long as the lateral ; petals erect linear-falcate obtuse, 1-1.1 cm. long ; lip deflexed linear-setaceous, 0.8-1 cm. long ; rostellum erect 3fid, gland-bearing arms divaricate, intermediate triangular erect ; anther ascending, furnished with a petaloid wing-like appendage, crisped on the margin ; ovary cylindrical, with the pedicel 1.5 cm. long.

Described from several dried and living specimens.

## TAB. 69.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa patens** *Linn. f. Thunb. Flor. Cap. (ed. 1823), 16, not of Sw.*—Herba erecta glabra humilis, 7-25 cm. alta; caulis strictus vel flexuosus, vaginis foliaceis subdistantibus acutis vel acuminatis vestitus; folia radicalia plurima rosulata erecto-patentia lineari-setacea acuminata, basi membranacea vaginantia, 0·7-1·7 cm. longa; racemus subcorymbosus laxe 1-3, rarius 4-6florus; pedicellis late patentibus; bracteæ submembranaceæ lanceolatæ acuminatæ ovario breviores; sepala lateralia adscendenti-patentia; falcato-lanceolata acuminata, basi antice lobata, 1·5-2 cm. longa; sepalum impar, erectum, fere planum, e basi breviter unguiculata cordato-orbiculare acuminatum, lateralibus subæquilongum; petala erecta oblique falcato-lanceolata acuta, 0·7-0·8 cm. longa; labellum deflexum, apice sæpius recurvum, lineari-setaceum, 1-1·4 cm. longum; rostellum erectum ambitu semi-orbiculare, trifidum, lobis glanduliferis divaricatis, intermedio valde recurvato; anthera horizontali-adscendens, connectivo elongato apiculato; appendice petaloidea apice libera ornata; ovario cum pedicello 1·5-2 cm. longo. (*Ex exempll. plur. vivis exsiccatisque*). *Ophrys patens*, *Linn. f. Suppl.* (1781), *p.* 404; *Serapias patens*, *Thunb. Prodr. Plant. Cap.* (1794), *p.* 3; *D. tenuifolia*, *Swartz in Kongl. Vet. Acad. Handl.* xxi. (1800), *p.* 214; *Penthea patens*, *Lindl. Gen. Sp. Orch.* (1838), *p.* 362.

**Hab: South-western Region ;** CAPE COLONY: moist grassy places on the hills and mountain tops of the Cape Peninsula, frequent, alt. 244-1576 met., flor. Dec.-Febr., *Burchell*, 656, *Drège*, 1232, *Bolus*, 3913, *Schlechter*, 145; and many other collectors; Steenbrass River, Caledon district, *Mund*; Langebergen, near Swellendam, *Burchell*, 7338.

**Plate 69.** Fig. 1, odd sepal; 2, 2, side sepals; 3, one of the petals; 4, lip; 5, column, petals and lip, side view; 6, ditto, front view, the intermediate lobe of the rostellum pushed up; 7, column, side view; P, indicates the petaloid appendage; 8, one of the pollinia.

An erect glabrous dwarf herb, 7-25 cm. alta ; stem straight or flexuous, clothed with subdistant leafy acute or acuminate sheaths; leaves radical many, rosulate, erect-spreading linear setaceous acuminate, membranous and sheathing at base. 0·7-1·7 cm. long ; raceme subcorymbose, laxly 1·3, more rarely 4-6 flowered, pedicels widely spreading ; bracts submembranous lanceolate-acuminate, shorter than the ovary ; lateral sepals ascending, then spreading, falcate-lanceolate acuminate, lobed in front at the base, 1·5-2 cm. long ; odd sepal erect, almost flat, from an unguiculate base cordate-orbicular acuminate, about as long as the lateral ; petals erect, obliquely falcate-lanceolate acute, 0·7-0·8 cm. long ; lip deflexed, usually recurved at the apex, linear setaceous 1-1·4 cm. long ; rostellum erect, semi-orbicular in outline, 3fid, the gland-bearing arms divaricate, intermediate lobe strongly recurved ; anther horizontal, then ascending, the connective elongate apiculate, furnished with a petaloid appendage free at the apex.

Described from several living and dried specimens.

## TAB. 70.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Telipogonis**, *Reichenbach fl. in Linnæa*, vol. xx. (1847), p. 689.—Herba humilis erecta subglabra, 5-14 cm. alta; caulis foliatus strictus vel sæpius decumbens flexuosusve; folia caulina 3-6 linearia, erecta vel laxè adscendentia, basi vaginantia acuta, 3-10 cm. longa; racemus abbreviatus sæpe subcapitatus, dense 3-8florus, rarius laxiusculus; bractæ lanceolatæ setaceo-cuspidatæ, flores superantes; flores in genere inter minores; sepala lateralìa patenti-adscendentia ovato-lanceolata acuta sub apice setaceo-aristata, cum arista circ. 0·8 cm. longa; sepalum impar anticum sub-galeato-cucullatum, ore late ovato, sub apice obtuso setaceo-acuminatum, sepalis lateralibus æquilongum, dorso in calcar deflexum cylindricum, apice bilobulatum, 0·3 cm. longum productum; petala erecta oblique oblonga apice inæqualiter biloba, basi antice in lobum obtusum dilatatum 0·3 cm. longa; labellum patenti-deflexum subulatum acutum vel acuminatum, 0·5 cm. longum; rostellum trilobum, lateralibus obscuris vel minutis, intermedio multo majore triangulari; anthera horizontalis; stigma excavatum. (*Ex exempll. plur. vivis exsiccatisque.*)

*Hab.*: **South-western Region**; CAPE COLONY: Summit of Table Mt., in crevices of rocks, alt. 1076 met., fl. Nov. (anno 1816), *Bergius*, same locality, alt. 1076 met., fl. Nov. (anno 1904), *Miss H. M. L. Kensit!* (No. 9355 in my herb.); mountains about Bain's Kloof, dist. Wellington, alt. 706 met., fl. Nov. (anno 1896), *R. Schlechter*, 9165!

**Plate 70.** Fig. 1, flower with bract, front; 2, ditto, side view; 3, side sepal; 4, spur of the odd sepal; 5, 5, petals; 6, lip; 7, lip and further petal in situ; 8, column with one petal, oblique view; 9, ditto, front view; 10, column only, side view; 11, one of the pollinia; 12, rostellum detached.

An erect dwarf subglabrous herb, 5-14 cm. high; stem leafy straight or more often decumbent or flexuous; leaves 3-6, linear erect or laxly ascending acute sheathing at base, 3-10 cm. long; raceme abbreviated, often subcapitate, densely 3-8flowered, more



rarely rather lax; bracts lanceolate, setaceously cuspidate, exceeding the flowers; flowers among the smaller ones in the genus; lateral sepals spreading-ascending ovate-lanceolate acute, setaceously aristate below the apex, with the awn about 0·8 cm. long; odd sepal anticus, somewhat galeate-cucullate, mouth broadly ovate, setaceously acuminate below the obtuse apex, as long as the lateral sepals, produced into a deflexed spur, bilobulate at the apex, 0·3 cm. long; petals erect, obliquely oblong, unequally bilobed at the apex, dilated at the base in front into an obtuse lobe, 0·3 cm. long; lip spreading-deflexed subulate acute or acuminate, 0·5 cm. long; rostellum 3lobed, the lateral lobes obscure or minute, the intermediate much larger triangular; anther horizontal; stigma somewhat excavate.

Described from several living and dried specimens.

This is an extremely interesting and rare species, quite unlike any other species of South African Orchid known to me. Only three collections are known; the first by Berg, a Cape Town apothecary and collector, in 1816; the second by Dr. R. Schlechter in 1896; the third by Miss H. M. L. Kensit in 1904. It was long one of the most eagerly sought for of Orchids in S. Africa, being quite unknown save for Reichenbach's description, drawn solely from dried specimens. Great, therefore, was our pleasure when excellent living specimens were found sufficiently near to us so that a drawing could at once be made from the life. Reichenbach says that the plant involuntarily reminded him of *Telipogon*. I have here no access to any figure of this genus. But as it is described as belonging to the tribe Vandæ—as being epiphytical in its habit, whereas our plant is clearly terrestrial and Ophrydeous; as moreover *Telipogon* inhabits the Andes of Columbia and Peru, Reichenbach must have referred solely to an external resemblance, and any structural affinity must be extremely improbable. I place this plant in the section of *Disa* known as *Orthocarpa*.



## TAB. 71.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa vaginata**, *Harvey in Hook. Lond. Journ. Bot.*, vol. i. (1842), p. 15.—Herba erecta gracilis glabra, 7·5-16 cm. alta; caulis strictus basin versus foliatus, vaginis 4-5 erectis acutis submembranaceis ciliolatis resinoso-punctatis dense vestita; folia 3-4 erecto-patentia oblongo-ovata vel lanceolata subacuta, 2-4 cm. longa; racemus subcorymbosus, laxe 2-9florus; bracteæ membranaceæ ovato-lanceolatae acutæ sæpius ovario æquilongæ; sepala lateralìa patentia, late oblonga, leviter concava obtusa, 0·6 cm. longa; sepalum impar erectum galeatum ore elliptico, dorso in calcar pendulum filiforme ovario duplo brevius productum; petala erecta falcato-oblonga obtusa, 0·4 cm. longa, sub galea semi-abscondita; labellum porrectum spathulato-oblongum, petalis æquilongum; rostellum brevissimum; anthera horizontalis; stigma pulvinatum, medio subdepressum. (*Ex exempl. plur. vivis exsiccatisque.*) *D. modesta*, *Reichenbach f. in Linnæa*, vol. xx. (1847), p. 690.

**Hab:** **South-western Region**; CAPE COLONY: moist grassy places on Table Mt. near Capetown, and on other mountains of the Cape Peninsular range, not very rare, but not frequent, alt. 425-1066 met., fl. Nov.-Jan., *Harvey*; *Bolus*, 3898, and in *Herb. Norm. Aust.-Afr.*, 164; *R. Schlechter*, 205, 68; hills Houw Hoek, alt. 305 met., *Bolus*; hills Hermanus, alt. 182 met., *Bolus*; Mts. near Villiersdorp, *Bolus*, 3898b.

**Plate 71.** Fig. 1. flower with bract, side view; 2, ditto, front view; 3, odd sepal; 4, 4, lateral sepals; 5, 5, petals; 6, lip; 7, column, side view; 8, ditto, seen from above; 9, ditto, front view—all variously enlarged.

An erect slender glabrous herb, 7·5-16 cm. high; stem straight, leafy towards the base, densely clothed with 4-5 erect acute submembranous resinous-dotted ciliolate sheaths; leaves 3-4, erect-spreading oblong-ovate or lanceolate subacute 2·4 cm. long; raceme subcorymbose, laxly 2-9flowered; bracts membranous

ovate-lanceolate acute, usually as long as the ovary ; lateral sepals spreading broadly oblong, slightly concave obtuse, 0.6 cm. long ; odd sepal erect galeate, mouth elliptical, produced at the back into a pendulous filiform spur, half as long as the ovary ; petals erect falcate-oblong obtuse, 0.4 cm. long, half hidden under the galea ; lip porrect spathulate oblong, as long as the petals ; rostellum very short ; anther horizontal ; stigma pulvinate, somewhat depressed in the middle.

Described from several dried and living specimens.

## TAB. 72.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa tenella**, Swartz, in *Kongl. Vet. Acad. Handl.* vol. xxi. (1800), p. 212.—Herba pusilla erecta glabra, 5-15 cm. alta; caulis strictus, vel rarius subflexuosus, foliatus; folia 5-14 erecta spiraliter torta linearia acuta basi membranacea dilatata vaginantia, 2·5-8 cm. longa, circ. 0·15 lata; spica oblonga vel cylindrica, subdense 4-multiflora; bracteæ foliaceæ, marginibus membranaceæ, ovatæ erectæ acuminatissimæ, flores excedentes; sepala lateralía patula oblonga obtusa, 0·5 cm. longa; sepalum impar suberectum galeatum, ore obovato, lateralibus æquilongum vel paullo brevius, dorso in calcar cylindricum rectum vel decurvum productum limbo æquilongum; petala erecta, oblique late ovata vel suborbicularia, acuta, 0·2-0·3 cm. longa; labellum porrectum lineari-oblongum, apice paullo dilatatum, 0·3-0·4 cm. longum; rostellum abbreviatum, lobulis glanduliferis brevissimis approximatis; anthera resupinata. (*Ex exempll. plur. viv. exsiccatisque.*)—*Orchis tenella*, Linn. f. *Suppl.* (1781), p. 400; *Satyrium tenellum*, Thunb. *Prodr. Plant. Cap.* (1794), p. 5.

**Hab.:** South-western Region; CAPE COLONY: Sandy flat (Kenilworth Racecourse), alt. 25 met., *Schlechter*, 1552!; Stellenbosch, alt. 100 met., fl. Aug., *Miss M. F. Farnham* (in herb. Norm. Aust. Afr. 309); near Wellington, *Miss M. E. Cummings*, 6094 in my herb.; Eland's Fontein, Koude Bokkeveld, alt. 1000 met., fl. Oct., *R. Marloth*, 3264!; Cederbegen, near Clanwilliam, *C. L. Leipoldt*, 573!; Cederbergen, near Sneeuwkop, fl. Oct., *A. Bodkin*!

**Plate 72.** Fig. 1, flower, front view; 2, ditto, side view; 3, ditto, sepals removed; 4, 4, side sepals; 5, 5, petals from different flowers; 6, 6, lip from ditto; 7, column viewed from above; 8, ditto, side view.

A small erect glabrous herb, 5-15 cm. high; stem straight, or more rarely subflexuous, leafy; leaves 5-14 erect, spirally twisted linear acute, membranous dilated and sheathing at base, 2·5-8 cm. long, about 0·15 cm. wide; spike oblong or cylindrical, rather

densely 4-many-flowered ; bracts leaf-like, margins membranous, ovate erect, very acuminate, exceeding the flowers ; lateral sepals spreading oblong obtuse, 0·5 cm. long ; odd sepal suberect galeate, mouth obovate, as long as the lateral sepals or a little shorter, produced at the back into a cylindrical straight or decurved spur, as long as the limb ; petals erect, obliquely and broadly ovate or suborbicular, acute, 0·2-0·3 cm. long ; lip porrect linear-oblong, slightly dilated at the apex, 0·3-0·4 cm. long ; rostellum abbreviate, the gland-bearing lobes very short approximate ; anther resupinate.

Described from several living and dried specimens. The flowers are pinkish purple in colour, or more rarely white.

## TAB. 73.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa cylindrica**, Swartz, in *Könl. Vetensk. Acad. Handl.*, vol. xxi. (1800), p. 213.—Herba erecta glabra, 10-30 cm. alta; caulis strictus vel subflexuosus foliatus; folia erecto-patentia oblongo-lanceolata acuta, marginibus undulatis, 3-7 cm. longa; spica cylindrica dense vel sublaxe multiflora, 4-10 cm. longa, 1-2 cm. lata; bractæ erectæ herbaceæ lanceolatæ acutæ, sæpius flores æquantes; sepala lateralibus oblique oblonga patenti-recurva obtusa sub apice apiculata, 0·6-0·8 cm. longa; sepalum impar subdeclinatum cucullatum, ore oblongo, sub apice apiculatum, sepalis lateralibus æquilongum, dorso basi in saccum brevem, 0·2 cm. longum, productum; petala erecta, oblique lanceolato-subfalcata, obtusa, basi antice lobulato-dilatata, 0·4 cm. longa; labellum patenti-deflexum, lineari-oblongum obtusum, 0·5 cm. longum; rostellum erectum, lobis lateralibus brevissimis, intermedio multo majore obtuso vel, ob apicem recurvum, specie bilobulatum; anthera supinata, polliniis sphaericis. (*Ex exempll. plur. viv. exsiccatisque.*)—*Satyrium cylindricum*, Thunb. *Prodr. Plant. Cap.* (1794), p. 5.

**Hab. : South-western Region ;** CAPE COLONY : Stony and sandy places on Table Mt., alt. 760-1066 met., fl. Dec., *Harvey*, 137; *Bolus*, 4537; *Wolley Dod*, 2112!; Langebergen, near Riversdale, alt. 457 met., fl. Dec., *R. Schlechter*; same locality, Garcia's Pass, fl. Oct., *Bolus*, 13465; Outeniquabergen, above Montagu Pass, alt. 1220 met., fl. Nov., *R. Schlechter*.

**Plate 73.** Fig. 1, flower, front view; 2, ditto, side view; 3, one of the side sepals; 4, odd sepal; 5, petals, in situ; 6, lip; 7, 9, column, front view, the middle lobe of the rostellum reflexed at the apex and appearing bilobed; 8, ditto, side view; 10, one of the pollinia.

An erect glabrous herb, 10-30 cm. high; stem straight or subflexuous leafy; leaves erect-spreading oblong-lanceolate acute, margins undulate, 3-7 cm. long; spike cylindrical, densely or rather laxly many-flowered, 4-10 cm. long, 1-2 cm. in diameter;

bracts erect herbaceous lanceolate acute, usually equalling the flowers; lateral sepals obliquely oblong spreading-recurved, obtuse apiculate below the apex, 0.6-0.8 cm. long; odd sepal subdeclinate cucullate, mouth oblong, apiculate below the apex, as long as the lateral sepals, produced dorsally into a short sac, 0.2 cm. long; petals erect, obliquely lanceolate-subfalcate, obtuse, widened and lobed at the base in front, 0.4 cm. long; lip spreading-deflexed, linear-oblong obtuse, 0.5 cm. long; rostellum erect, lateral lobes very short, intermediate much larger, obtuse or appearing bilobed on account of the recurved apex; anther resupinate, pollinia globose.

Described from several living and dried specimens.



## TAB. 74.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa draconis**, Swartz, in *Kongl. Vetensk. Acad. Handl.* (1800), p. 210.—Herba erecta glabra, 20-50 cm. alta; caulis strictus vel flexuosus, vaginis membranaceis acuminatis dense vestitus; folia radicalia 2-4 linearia flaccida acuta per anthesin marcescentia 8-20 cm. longa, 1-2 cm. lata; racemus subcorymbosus, laxe 6-11florus, floribus in genere inter majores; bracteæ erectæ membranaceæ oblongo-lineares acuminatæ, sæpius ovario paullo longiores; sepala lateralialia patentia oblonga obtusa, 2 cm. longa; sepalum impar oblongum vel subobovatum truncatum, infra subcucullatum, sursum recurvum, basi in calcar patenti-deflexum filiforme, ovario pedicellato sæpius paullo longius, productum; petala erecta linearia vel oblonga obtusa vel acuta, basi rotundata et antice lobata, sepalis lateralibus subæquilonga; labellum adscendens, apice deflexum, lineare obtusum petalis æquilongum; rostellum subquadratum adscendens; anthera pendula; ovarium cum pedicello 2·5-4·5 cm. longum. (*Ex exempll. plur. viv. exsiccatisque.*)—*Orchis draconis*, L. f. *Suppl.* (1781), 399; *Satyrium draconis*, Thunb. *Prod. Pl. Cap.* (1794), p. 5.

**Hab.:** **South-western Region**; CAPE COLONY: Slopes of Table Mt., above Orange Kloof, alt. 305 met., fl. Dec., very rare on the Cape Peninsula, *R. Schlechter*, 90B; hills near Stellenbosch, in clayey soil, alt. 91 met., fl. Dec., *Miss Farnham*, in *Herb. Norm. Aust. Afr.*, 334!; Paarlberg, fl. Nov.-Dec., *Drège*; Tulbagh Kloof Waterfall, 245 met., fl. Nov., *Bolus*, 5280; near Ceres, alt. 450 met., fl. Nov., *A. W. Goatcher*!; foot of Ezel's Kop, near Lelie Fontein, fl. Nov., 1219-1524 met., Namaqualand, *Drège*; in the region called Roggeveld, Nov.-Dec., *Thunberg*.

**Plate 74.** Fig. 1, odd sepal; 2, 2, side sepals; 3, 3, 4, petals from different flowers; 5, 6, lip from ditto; 7, column, side view; 8, ditto, front view; 9, pollinia, all variously magnified.

An erect glabrous herb, 20-50 cm. high; stem straight or flexuous, densely clothed with membranous acuminate sheaths; leaves radical 2-4, flaccid linear acute, withering during the

flowering period, 8-20 cm. long, 1.2 cm. wide; raceme sub-corymbose laxly 6-11flowered, flowers among the larger ones in the genus; bracts erect membranous oblong-linear acuminate, usually a little longer than the ovary; lateral sepals spreading, oblong obtuse, 2 cm. long; odd sepal oblong or subobovate truncate, subcucullate below, recurved above, produced at base into a spreading-deflexed filiform spur, usually a little longer than the pedicellate ovary, petals erect linear or oblong obtuse or acute, rounded at base and lobed in front, about as long as the lateral sepals; lip ascending, decurved at the apex, linear-obtuse as long as the petals; rostellum subquadrate, ascending; anther pendulous; ovary with the pedicel 2.5-4.5 cm. long.

Described from several dried and living specimens.

## TAB. 75.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Schlechteriana**, *Bolus in Trans. S. A. Philosoph. Soc.*, vol. xvi., part 2, p. 149 (1905).—Herba erecta glaberrima, ad 55 cm. alta; folia radicalia 7-11, erecta linearia acuminata rigida prominenter nervata, 30 cm. longa, 0.1-0.2 cm. lata; scapus substrictus, vaginis membranaceis acuminatis arcte amplexantibus, marginibus basi longe connatis, distanter vestitus; bracteae patentes membranaceae ovatae acuminatae venosae, ovario breviores; racemus laxe 6-12florus, 8-14 cm. longus, floribus in genere inter majores, patentibus; sepala lateraliter patentia oblonga acuta, 2.3 cm. longa; sepalum impar erectum subgaleatum ovatum acuminatum, apice recurvatum, ore ovato, 2-3 cm. longo, 1.5 cm. lato, basi sensim in calcar filiforme eleganter decurvum, ad 4.8 cm. longum, ovarium excedens, productum; petala minima resupinata, e basi lata semi-orbiculari deinde angustata, abrupte incurvum uncinata acuminata, altitudine rostellum vix superantia; labellum patulum oblongo-lanceolatum acutum integrum, supra basin leviter constrictum, 1.8-2 cm. longum; anthera resupinata; pollinium glandulae discretae; rostellum erectum subelongatum, leviter incurvum, oblongum, apice tridentatum; stigma pulviniforme; capsula erecta clavato-cylindrica, ad 3.8 cm. longa. (*Ex exempll. plur. viv.*)

**Hab.:** South-western Region; CAPE COLONY: Riversdale Division, between Garcia's Pass and Muis Kraal, on rocky mountain sides, alt. about 550 met., fl. Dec. (1904), *Mrs. C. Luyt* (No. 10571 in my herb.)

**Plate 75.** Fig. 1, flower, front view; 2, one of the side sepals, nat. size; 3, odd sepal; 4, one of the petals; 5, 6, lip from different flowers, front view, nat. size; 7, ditto, side view, n.s.; 8, column with one petal; 9, column, front view; 10, section through one of the leaves—all the latter variously magnified.

An erect glabrous herb, up to 55 cm. high; leaves radical 7-11, erect linear acuminate rigid, prominently nerved, 30 cm. long,

0·1-0·2 cm. wide ; scape rather straight, clothed with distant membranous acuminate sheaths, closely clasping, margins connate for most of their length ; bracts spreading membranous ovate acuminate veined, shorter than the ovary ; raceme laxly 6-12 flowered, 8-14 cm. long, flowers spreading, among the larger ones in the genus ; lateral sepals spreading oblong acute, 2·3 cm. long ; odd sepal erect subgaleate ovate acuminate, apex recurved, mouth ovate, 2-3 cm. long, 1·5 cm. wide, gradually produced at base into a filiform gently decurved spur, up to 4·8 cm. long, exceeding the ovary ; petals very small, resupinate, broadly semi-orbicular at base, then narrowed and abruptly incurved uncinat acuminate, scarcely exceeding the rostellum in height ; lip spreading oblong-lanceolate acute entire, slightly constricted above the base, 1·8-2 cm. long ; anther resupinate ; glands of the pollinia distinct ; rostellum erect, somewhat elongated, slightly incurved, oblong, tridentate at the apex ; stigma pulviniform ; capsule erect clavate-cylindrical, up to 3·8 cm. long.

Described from several living specimens sent to me by Mrs. C. Luyt, from Garcia's Pass, the only station from which this interesting species has been recorded.

## TAB. 76.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa lugens**, *Bolus in Journ. Linn. Soc.*, vol. xx. (1884), p. 483.  
—Herba erecta gracillima glabra, 40-80 cm. alta; folia radicalia 6-12, linearia graminioidea acuta, rigida, supra canaliculata subtus carinata 20-55 cm. longa; scapus strictus vel subflexuosus, vaginis membranaceis arcte amplexentibus acuminatis distantibus, vestitus; racemus sæpe flexuosus, laxè 5-15florus, 10-22 cm. longus, floribus late patentibus; bracteæ suberectæ membranaceæ ovatæ acuminatissimæ, ovario multo breviores; sepala lateralialia patentia oblonga acuta, 1-1.4 cm. longa; sepalum impar erectum galeatum, ore suborbiculari, dorso in calcar conicum adscendens, 0.3 cm. longum productum; petala resupinata, falcata apice ampliata bilobulata, lobulis acutis vel acuminatis; labellum patenti-deflexum recurvum oblongo-linguæforme profunde lacerato-multifidum, laciniis apicem versus sæpe 2-4lobis, 1.8-2.3 cm. longum; rostellum erectum 3fidum lobis æquilongis, intermedio postposito, ut glandulam unicam suborbicularem teneat; anthera resupinata. (*Ex exempll. plur. viv.*)—*Herschelia lugens*, *Kränzlin, Orch. Gen. Spec.* I. (1900), 805.

**Hab.:** **South-western Region;** CAPE COLONY: Amongst Restiaceæ on sandy downs called the "Cape Flats" between Cape Town and Muizenberg, alt. circ. 20-30 met., fl. Oct.-Nov., *Bolus*, 3810; *A. Bodkin* in *Herb. Norm. Aust. Afr.*, 494; near Kuils River, *Pappe*, 39!—**South-eastern Region:** between Grahams-town and Port Elizabeth, *O'Brien*; near Grahamstown, alt. 670 met., "said to be rare," *Galpin*.

**Plate 76:** Fig. 1, flower, front view; 2, column, with petals, oblique view; 3, one of the lateral sepals; 4, portion of the lip; 5, pollinarium; 6, section through a leaf.

An erect slender glabrous herb, 40-80 cm. high; leaves radical 6-12 linear, grass-like, acute, rigid, canaliculate above, carinate below; 20-55 cm. long; scape straight or subflexuous, clothed with membranous distant closely-clasping acuminate sheaths; raceme often flexuous, laxly 5-15flowered, 10-22 cm. long, the

flowers widely-spreading ; bracts sub-erect membranous ovate, very acuminate, much shorter than the ovary ; lateral sepals spreading, oblong acute, 1-1.4 cm. long ; odd sepal erect galeate, the mouth suborbicular, produced at the back into a conical, ascending spur, 0.3 cm. long ; petals resupinate falcate widened towards the apex and bilobulate, lobes acute or acuminate ; lip spreading-deflexed, recurved oblong-linguæform, deeply lacerato-multifid, the segments often again 2-4lobed towards the apex, the whole 1.8-2.3 cm. long ; rostellum erect 3fid, the lobes equal in length, intermediate placed further back so as to hold the sub-orbicular, usually solitary gland ; anther resupinate.

Described from several living specimens.

The gland in this species is usually solitary, but plants have been found bearing two glands.



## TAB. 77.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Charpentieriana**, *Reichenbach, fil. in Linnæa* xx. (1847), 688; *Hook, f. Icon. Plant., tab.* 1841.—Herba erecta gracillima glabra, 35-60 cm. alta; folia radicalia 6-14, erecta rigida anguste linearia acuta 15-35 cm. longa; scapus strictus, vaginis membranaceis distantibus acuminatis vestitus; racemus laxissime 3-7florus; bracteæ lanceolatae membranaceæ acuminatæ ovario breviores; sepala lateralialia patenti-deflexa, lanceolato-ovato acuta concava, 1.2-1.4 cm. longa; sepalum impar erectum galeatum, ore ovato acuto, dorso in calcar conicum acutum, 0.5 cm. longum productum; petala adscendentia falcato-oblonga, apice ampliata irregulariter lacerato-dentata, basi antice rotundata, 0.6-0.7 cm. longa; labellum pendulum longissime unguiculatum ungue lineari-filiforme accrescente 4-8 cm. longo, apice dilatatum laciniatum; rostellum elevatum trilobum, lobis æquilongis acutis, intermedio postposito; anthera valde resupinata; glandula unica subquadrata. (*Ex exempll. plur. viv. exsiccatisque.*)—*D. macroglottis*, *Sonder in Linnæa*, xx. (1847), p. 219, *nomen*.—*Herschelia Charpentieriana*, *Kränzl. Orch. Gen. & Sp.*, vol. i. (1900), 807.

**Hab. : South-western Region ;** CAPE COLONY : Amongst low shrubs near Villiersdorp, alt. circ. 396 met., fl. Nov. (1879), *Bolus*, 5278; near Caledon, fl. Nov. (1900), *Miss L. Guthrie!* in my herb.; summit of the Zwartberg Pass, near Prince Albert, in rocky places, alt. circ. 1615 met., fl. Nov. (1904), *Bolus*, 11645; hills between Houw Hoek and Palmiet River, alt. 370 met., fl. Nov. (1879), *Bolus*, 5278.

**Plate 77.** Fig. 1, flower, front view; 2, odd sepal; 3, one of the side sepals; 4, column and petals; 5, one of the petals; 6, column, side view; 7, ditto, front view; 8, pollinarium; 9, apex of the segment of the lip.

An erect very slender glabrous herb, 35-60 cm. high; leaves radical 6-14, erect rigid narrow-linear acute, 15-35 cm. long; scape straight, clothed with distant membranous acuminate sheaths; raceme very laxly 3-7flowered; bracts lanceolate

membranous acuminate, shorter than the ovary; lateral sepals spreading-deflexed, lanceolate-ovate acute concave, 1.2-1.4 cm. long; odd sepal erect galeate, mouth ovate acute, produced dorsally into a conical acute spur, 0.5 cm. long; petals ascending falcate-oblong, widened at the apex and irregularly lacerate-dentate, rounded in front at the base, 0.6-0.7 cm. long; lip pendulous, with a linear-filiform claw, 4-8 cm. long, dilated and lacinate at the apex; rostellum elevated 3lobed, lobes equal in length acute, the middle placed farther back; anther strongly resupinate; gland solitary subquadrate.

Described from several living and dried specimens.

A very curious and distinct species of a group of which we are yet far from knowing the limits of variability. The long lip is very remarkable, and as it sways about in the wind suggests a possible means of attraction for insects.

## TAB. 78.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa oreophila**, *Bolus in Journ. Linn. Soc.*, vol. xxv. (1890), 170.—Herba erecta vel subdecumbens gracilis glabra, 10-35 cm. alta; caulis tenuis subrectus vel flexuosus foliatus; folia erecta rigidula graminoides anguste-lineariter acuta, basi vaginantia nervata, sursum sensim minora, ad 25 cm. longa; spica laxa 3-25 flora, floribus in genere inter minores; bracteæ erecto-patentes membranaceæ lanceolatae acuminatae sæpius floribus breviores; sepala lateraliter ovalia obtusissima, sub apice mucronulata, patentiter deflexa, 0.5 cm. longa; sepalum impar erectum galeatum obtusum, ore oblongo, dorso in calcar horizontale vel eleganter decurvum filiforme obtusum, 0.5-0.8 cm. longum productum; petala erecta oblique oblonga obtusa, apicem versus margine inflexa, basi antice ampliata rotundataque, 0.4 cm. longum; labellum porrectum ligulato-oblongum apice parum latius obtusum subundulatum, 0.6 cm. longum; rostellum erectum subtruncatum; anthera horizontalis; ovarium rectum gracillimum, 1 cm. longum. (*Ex exempl. plur. viv. exsiccatisque.*)

**Hab.:** South-eastern Region; CAPE COLONY: Tembuland in graminosis, Engcobo Mt., alt. 1370 met., fl. Jan. (1896), *Bolus*, 8737. GRIQUALAND EAST: rocky places, Insiswa Mt., alt. 2070 met., fl. Jan. (1895), *R. Schlechter*, 6483! in my herb.; rocky places, summit of Mt. Currie, Griqualand East, alt. 2300 met., fl. Feb., *Tyson*, 1073, in my herb.—NATAL: Oliver's Hoek Pass, fl. Jan., *J. M. Wood*, 3413!

**Plate 78.** Fig. 1, flower, front view; 2, ditto, side view; 3, lip; 4, column with one petal, side view—all variously magnified.

An erect or subdecumbent slender, glabrous herb, 10-35 cm. high; stem slender, rather straight, or flexuous, leafy; leaves erect, rigid, grass-like, narrow linear, acute, sheathing at base, nerved, becoming gradually smaller, upwards, in length attaining 25 cm.; spike laxly 3-25 flowered, flowers among the smaller ones in the genus; bracts erect-spreading, membranous, lanceolate

acuminate usually shorter than the flowers ; lateral sepals oval, very obtuse, mucronulate below the apex, spreading-deflexed, 0·5 cm. long ; odd sepal erect, galeate obtuse, mouth oblong, dorsally produced into a horizontal or gently decurved filiform spur, 0·5-0·8 cm. long ; petals erect obliquely oblong obtuse, margin inflexed towards the apex, widened and rounded at the base in front, 0·4 cm. long ; lip porrect ligulate-oblong, a little widened towards the apex, obtuse, subundulate, 0·6 cm. longum ; rostellum erect, somewhat truncate ; anther horizontal, ovary straight, very slender, 1 cm. long.

Described from several living and dried specimens.

The drawing was made from a plant gathered at Engcobo in 1896.

## TAB. 79.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa gladioliflora**, *Burchell, ex Lindley Gen. & Sp., Oct.* (1838), 352.—Herba erecta glabra gracillima, 30-45 cm. alta ; folia 2-5 radicalia erecta rigida anguste linearia acuta, per anthesin marcescentia, 10-23 cm. longa ; scapus strictus vel subflexuosus, vaginis 3-4 herbaceis distantibus acuminatis arcte appressis vestitus ; racemus laxe 6-14-florus, floribus adscendentibus ; bracteae erectae membranaceae lanceolatae acuminatae sæpius ovario paullo breviores ; sepala lateralalia patentia oblonga obtusissima, sub apice apiculata, 1.1-1.6 cm. longa ; sepalum impar erectum subgaleatum, ore lanceolato insigniter acuto, sepalis lateralibus paullo brevius, dorso in calcar patenti-deflexum filiforme, ovario brevius sensim productum ; petala erecta lanceolato-falcata acuminata, antice basi ampliata, 0.4 cm. longa ; labellum porrectum oblongum, apicem versus ampliatus, obtuse apiculatus, sepalis lateralibus æquilongum ; rostellum erectum brevissimum, leviter excisum ; anthera resupinata ; ovarium cum pedicello 1.7-2.5 cm. longum. (*Ex exempll. plur. viv. exsiccatisque.*)—*D. capricornis*, *Reichb. f. in Linnæa*, xx. (1847), 689.

**Hab.:** **South-western Region ;** CAPE COLONY: district of Knysna, Paarde Berg, between Avontuur and Plettenberg Bay, March 27 (1814), *Burchell*, 5184 ; near Millwood, *Stoltenhof*, No. 5957 in my herb., an unusually large-flowered form ; district Swellendam, slopes of the Langebergen, alt. 915 met., fl. Febr., (1890), near the town, *W. Borchers*, in *Herb. Norm. Austr., Afr.*, No. 1099 ! near Riversdale, slopes of the Langebergen, alt. 305 met., fl. Feb., *R. Schlechter*, 2218.

**Plate 79.** Fig. 1, flower ; 2, odd sepal, side view ; 3, one of the side sepals ; 4, 4, petals in different positions ; 5, one of the petals from another flower ; the petals and lip in this species, as in many others, sometimes differ considerably ; 6, 7, lip from different flowers ; 8, column, with petals, front view ; 9, column, side view.

An erect glabrous, very slender herb, 30-45 cm. high, leaves 2-5 radical erect rigid narrow-linear acute, withering during the

flowering period, 10-23 cm. long; scape straight or subflexuous, clothed with 3-4 herbaceous, distant, acuminate sheaths; raceme laxly 6-14 flowered, flowers ascending; bracts erect membranous, lanceolate-acuminate, usually a little shorter than the ovary; lateral sepals spreading oblong, very obtuse apiculate below the apex, 1.1-1.6 cm. long; odd sepal erect subgaleate, mouth lanceolate, remarkably acute, a little shorter than the lateral sepals, gradually produced at the back into a spreading deflexed filiform spur shorter than the ovary; petals erect lanceolate-falcate acuminate, in front at the base widened, 0.4 cm. long; lip porrect oblong, widened towards the apex, obtusely apiculate, as long as the lateral sepals; rostellum very short erect, slightly excised; anther resupinate; ovary, with the pedicel, 1.7-2.5 cm. long.

Described from several dried and living specimens.



## TAB. 80.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Tysonii**, *Bolus in Journ. Linn. Soc.*, vol. xxv. (1891), 172.  
—Herba erecta robusta glabra, 25-40 cm. alta; caulis strictus vel flexuosus validus foliosus; folia erecto-patentia ovato-lanceolata vel lanceolata acuta, basi vaginantia, 6-12 cm. longa; spica cylindrica, dense multiflora, floribus adscendentibus; bracteæ herbaceæ lanceolatae acuminatae, flores sæpius æquantes; sepala lateralialia ovalia vel oblique oblonga subacuta, sub apice apiculata, 0·9 cm. longa; sepalum impar erectum galeatum obtusum, lateralibus æquilongum, ore late ovato acuto, dorso infra medium in calcar adscendens cylindricum, apice inflatum, 0·4 cm. longum productum; petala erecta sursum lanceolata, obtuse acuminata, abrupte geniculato-inflexa ideoque uncinata, basi antice ampliata concavaque; labellum porrectum oblongum obtusum vel subacutum, 0·6 cm. longum; rostellum subelongatum erectum bilobum, lobis divergentibus, petalis adnatis; anthera horizontalis. (*Ex exempl. unico viv. plur. exsiccatisque.*)

**Hab.:** **South-eastern Region**; CAPE COLONY: Dohne Mt., Stutterheim District, 1220 met., fl. Jan., *T. R. Sim*, 960! same place, *Bolus*, 8708; Beeste Kraal, near Kokstad, Griqualand East, alt. 1600 met., fl. Nov.-Dec., *Tyson*, 1609!; Insiswa Mt., alt. 2070 met., fl. Jan., *R. Schlechter*, 6509!

**Plate 80.** Fig. 1, flower, with bract; 2, odd sepal; 3, 3, side sepals; 4, 4, petals; 5, lip; 6, 8, column and petals, front view; 7, petals and lip, side view; 9, column, side view; 10, one of the pollinia.

An erect robust glabrous herb, 25-40 cm. high; stem straight or flexuous, stout, densely leafy; leaves erect-spreading, ovate-lanceolate or lanceolate acute, sheathing at base, 6-12 cm. long; spike cylindrical, densely many-flowered, flowers ascending; bracts herbaceous, lanceolate acuminate, usually as long as the flowers; lateral sepals oval or obliquely oblong subacute, mucronate below the apex, 0·9 cm. long; odd sepal erect galeate

obtuse, as long as the lateral, mouth broadly ovate acute, produced at the back, just below the middle, into an ascending cylindrical spur, inflated at the apex, 0·4 cm. long; petals erect lanceolate, obtusely acuminate, abruptly geniculate inflexed, widened and concave in front at the base; lip porrect oblong obtuse or subacute, 0·6 cm. long; rostellum somewhat elongate erect bilobed, lobes divergent, adnate to the petals; anther horizontal.

Described from a single living specimen and several dried ones.

## TAB. 81.

Tribe OPHRYDEÆ.

Sub-tribe DISÆE.

Genus DISA.

**Disa cornuta** Swartz, in *Kongl. Vetensk. Acad. Handl.* vol. xxi. (1800), p. 210.—Herba erecta robusta glabra, 20-45 cm. alta; caulis strictus validus foliosus; folia erecto-patentia lanceolata vel ovato-lanceolata acuminata margine undulata, basi vaginantia. 10-16 cm. longa; spica cylindrica vel oblonga, dense multiflora; bracteæ foliaceæ ovato-lanceolatæ acuminatæ sæpius flores æquantes; sepala lateralia porrecto-deflexa late oblonga, obtusa sub apice apiculata, 1·5 cm. longa; sepalum impar erectum galeatum, ore orbiculari apice depresso, dorso in calcar patenti-deflexum 1 cm. longum productum; petala erecta lanceolato-falcata, apice incurva, basi antice lobata, lobo oblongo rotundato 0·8 cm. longa; labellum porrectum, late spathulato-obovatum, convexum 0·8 cm. longum; rostellum erectum bifidum; anthera resupinata; ovarium cylindricum, costis prominentibus. (*Ex exempll. plur. viv. exsiccatisque.*)—*Orchis cornuta* Linn. *spec. plant.* ed. 2 (1763), p. 1330; *Satyrium cornutum*, Thunb. *Prodr. Plant. Cap.* (1794) 5.

**Hab.:** **South-western Region;** CAPE COLONY: Sandy downs eastward of Cape Town, common, alt. ad 30 met. fl. Oct.-Dec., many collectors; Table Mountain, less frequent, ad 1066 met. *Burchell* 538. Du Toit's Kloof, alt. 610-915 met., fl. Jan., *Drège*, sandy plains near Mossel Bay, fl. Oct., *R. Schlechter!*; hills near Hoog Kraal's R., alt. infra 300 met. fl. Sept. *Drège*; **South-eastern Region;** Bushman's River, near Olifant's Hoek, fl. Oct. *Zeyher*; near Port Elizabeth, Reed's Bog, Sept. alt. circ. 60 met. *Bolus* 1896; grassy places, Mts. near Grahamstown, alt. 615 met., *MacOwan*; Katberg fl. Mart, *Zeyher*.

**Plate 81.** Fig. 1, flower, sepals and galea removed, side view; 2, ditto, front view, lip removed; 3, lamina of lip, the claw cut off; 4, one of the pollinia; 5, ovary; 6, section of ditto.

An erect robust glabrous herb, 20-45 cm. high; stem straight, stout, leafy; leaves erect-spreading lanceolate or ovate-lanceolate

acuminate, margin undulate, sheathing at base 10-16 cm. long; spike cylindrical or oblong, densely many-flowered; bracts leaf-like ovate-lanceolate, acuminate, usually as long as the flowers; lateral sepals projecting then deflexed, broadly oblong, obtuse, apiculate below the apex, 1.5 cm. long; odd sepal erect galeate mouth orbicular somewhat depressed at the apex, produced behind into a spreading-deflexed spur 1 cm. long; petals erect lanceolate-falcate, 0.8 cm. long, incurved at the apex lobed at the base in front, the lobe oblong and rounded; lip projecting spathulate-obovate convex above, 0.8 cm. long; rostellum erect, bifid; anther resupinate; ovary cylindrical, with prominent ribs.

Described and drawn from living specimens.

This is one of the commonest species of Orchids in the neighbourhood of those suburbs of Cape Town which lie on the eastern side of Table Mt., and may be found almost every year in October. It becomes less common the further we go eastward.

## TABB. 82, 83.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

***Disa æmula***, *Bolus in Journ. Linn. Soc.*, vol. xxii. (1885), p. 69.—Herba erecta robusta glabra 40-80 cm. alta; caulis strictus validus foliosus; folia erecto-patentia lanceolata acuminata, margine undulata basi vaginantia in bracteas transeuntia, 15-30 cm. longa; spica cylindrica 20-35 cm. longa, dense multiflora; floribus adscendentibus; bracteæ ovato-lanceolatæ vel lanceolatæ acuminatæ, flores æquantēs vel multo excedentes; sepala lateralialia oblique oblonga acuta porrecta, sub apice apiculata 1·4 cm. longa; sepalum impar horizontale, galeatum, ore orbiculari, lateralibus æquilongum, dorso in calcar patens apice deflexo filiforme 1·3 cm. longum, productum; petala erecta lanceolato-falcata apice incurva basi antice lobata, lobo oblongo rotundato; labellum patenti-decurvum oblongum vel oblongo-lanceolatum obtusum 1 cm. longum; rostellum breve erectum bifidum; anthera resupinata. (*Ex exempll. unico vivo, pluribusque exsiccatis.*)—*D. cornuta*, Kränz. in *Gen. & Sp. Orch.* I. (1900), 768.

**Hab.:** **South-western Region**; CAPE COLONY: Sandy plains east of Cape Town, Rapenburg, alt. infra 30 met., fl. Oct., *A. W. Goatcher* (No. 6862 in my herb.); near Salt River, *Harvey*; near Vyges Kraal farm 29 Oct. (1895), *Wolley Dod*, 397! near Groene Kloof, district Malmesbury, alt. 100 met., Oct., *Bolus*, 4330, Oct. (1878).

**Plate 82, 83.** Fig. 1, odd sepal magnified two diameters; 2, lateral sepals; 3, flower, side view, sepals and galea removed; 4, lip; 5, summit of ovary column and petals, all variously magnified.

An erect robust glabrous herb, 40-80 cm. high; stem straight, stout, leafy; leaves erect-spreading lanceolate acuminate, 15-30 cm. long, margins undulate, sheathing at base and gradually passing upward into bracts; spike cylindrical, 20-35 cm. long, closely many-flowered, the flowers ascending; bracts ovate-lanceolate or lanceolate acuminate, in length equalling or sometimes much

exceeding the flowers ; lateral sepals projecting forward, obliquely oblong acute apiculate, below the apex, 1·4 cm. long ; odd sepal horizontal, somewhat helmet-shaped, mouth orbicular, equalling the lateral sepals in length, produced behind into a spreading filiform spur 1·3 cm. long, which is deflexed at the apex ; petals erect lanceolate-falcate, incurved at the apex, at the base lobed in front, the lobe oblong and rounded ; lip spreading-decurved oblong or oblong-lanceolate obtuse, 1 cm. long, rostellum short erect bifid ; anther resupinate.

The chief marks of distinction from *D. cornuta* are the longer slenderer straighter spur and the much narrower and differently marked lip. It is also a taller plant with longer leaves.



## TAB. 84.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa polygonoides**, *Lindley Gen. & Sp. Orch.* (1838) 349; *Hook f. Bot. Mag. t.* 6532.—Herba erecta glabra, 20·45 cm. alta; caulis strictus subvalidus foliatus; folia “radicalia e gemma distincta ad basin caulis” (ex *Schlechter*) erecto-patentia lineari-lanceolata acuminata, in vaginas transeuntia, 9-30 cm. longa; spica cylindrica, 4-10 cm. longa 2-2·5 cm. diam. dense multiflora, floribus adscendentibus; bractæ submembranaceæ ovato-lanceolatae acuminatae floribus breviores; sepala lateralia patenti-deflexa oblonga obtusa, 0·6 cm. longa; sepalum impar erectum cacullato-galeatum, ore obovato-elliptico, dorso supra basin in calcar dependens clavatum limbo paullo brevius productum; petala erecta spathulato-obovata, 0·4 cm. longa; labellum deflexum lineare obtusum, petalis subæquilongum; rostellum erectum 3lobum, glanduliferis brevissimis, intermedio majore obtuso; anthera erecta. (*Ex exempl. unico vivo, pluribusque exsiccatis.*)—*D. natalensis*, *Lindley in Hook, Lond. Journ. Bot.* I. (1842) p. 16.

**Hab.:** **South-eastern Region;** CAPE COLONY: Marshy places near Grahamstown, alt. 610 met., fl. Dec., *MacOwan*, 357; grassy hills near the mouth of the Kei R., alt. 60 met., fl. Jan., *H. G. Flanagan*, 528, *R. Schlechter*, 6205; between Umtata and St. John's R., alt. 305-610 met., fl. Feb., *Drège*. NATAL: near Durban, alt. 30 met., fl. Sept., *J. Wylie*, 18 in herb. Wood. Zululand, Ngoya, alt. 610 met., fl. April, *Wylie* (No. 7600! in herb. Wood). TRANS-VAAL: in marsh near Donkerhoek, alt. 1500 met., fl. Nov., *R. Schlechter*, 3717!

**Plate 84.** Fig. 1, flower, front view; 2, ditto, side view; 3, odd sepal, front view; 4, one of the petals; 5, column, with one of the petals; 6, column, front view; 7, one of the pollinia.

An erect glabrous herb, 20-45 cm. high; stem straight, rather stout, leafy; leaves (“the radical, from a distinct bud at the base of the stem”—according to *Mr. Schlechter*, which I have not had an opportunity of verifying. My specimens do not shew it, but I do not in any way doubt the correctness of the statement)—erect-

spreading, linear-lanceolate, acuminate, 9-30 cm. long, passing upward into sheaths ; spike cylindrical, 4-10 cm. long, 2-2.5 cm. wide, densely many-flowered, flowers ascending ; bracts sub-membranous, ovate-lanceolate acuminate, shorter than the flowers ; lateral sepals spreading-deflexed, oblong obtuse, 0.6 cm. long ; odd sepal erect, cucullate-galeate, mouth obovate elliptical, produced behind above the base into a pendulous clavate spur, a little shorter than the limb. Petals erect spathulate-obovate, 0.4 cm. long. Lip deflexed, linear obtuse, about as long as the petals ; rostellum erect, 3lobed, gland-bearing lobes very short, the intermediate larger, obtuse ; anther erect.

Described from one living and several dried specimens.

## TAB. 85.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa racemosa**, *Linn. fil. Suppl.* (1781) 406, *Hook. Bot. Mag.*, t. 7021.—Herba erecta gracilis glabra, 25-70 cm. alta; caulis strictus vel subflexuosus, basin versus foliatus; folia radicalia 3-7, patentia vel erecto-patentia linearia vel lineari-lanceolata, acuta, 5-20 cm. longa, caulina similia in vaginas subdistantes sensim transeuntia; racemus laxe 4-9florus, floribus in genere inter majores, adscendentibus; bracteæ late ovatæ acuminatæ coloratæ, ovario longiores; sepala lateralialia patentia ovato-elliptica obtusissima, subapice apiculata, 2-2.5 cm. longa; sepalum impar erectum concavum, late ovatum vel suborbiculare, dorso infra medium saccatum; petala erecta, oblique oblonga, apice incurva, supra antheram conniventia, margine posteriore erosulata, 1-1.3 cm. longa; labellum porrecto-deflexum, lineare acutum 1 cm. longum; rostellum erectum trilobum, glanduliferis divaricatis, appendice petaloidea postice ornatis, intermedio obtuso concavo; anthera adscendens. (*Ex exempll. pluribus vivis exsiccatisque.*)—*Satyrium secundum*, *Thunb. Prodr. Plant. Cap.* (1794) 4; *D. secunda*, *Swartz in Kongl. Vetensk. Acad. Handl. Vol. xxi.* (1800) p. 213.

**Hab.:** **South-western Region**; CAPE COLONY: Moist places in sheltered ravines on the eastern slopes of the mountains of the Cape Peninsula; fl. Dec.-Jan. *Zeyher* 3915, *Bolus*, 4888; *Schlechter*, 94; *Wolley Dod*, 860. Du Toit's Kloof, alt. 610-914 met., *Drège*; Tulbagh, near the Waterfall, Oct., *Zeyher*; Zitzi-Kamma, alt. 60 met. fl. Nov., *R. Schlechter*; **South-eastern Region**; near Howison's Poort, alt. 540 met., fl. Dec., *R. W. Read*, No. 1293! in my herb.; near Grahamstown, alt. 610-760 met. fl. Nov.-Dec., *E. Galpin*, 292!

**Plate 85.** Fig. 1. One of the lateral sepals; 2, odd sepal front view; 3, ditto, side view; 4, one of the petals; 5, column petals and lip; 6, column, side view; 7, one of the pollinia.

An erect slender glabrous herb, 25-70 cm. high; stem straight or subflexuose, leafy towards the base; radical leaves 3-7 spreading

or erect-spreading linear or linear-lanceolate, acute, 5-20 cm. long, cauline similar, gradually passing off into the somewhat distant sheaths ; raceme laxly 4-9flowered, flowers among the larger ones in the genus, ascending ; bracts broadly ovate acuminate, coloured, longer than the ovary ; lateral sepals spreading ovate-elliptical, very obtuse, apiculate below the apex, 2-2.5 cm. long ; odd sepal erect concave, broadly ovate or suborbicular, dorsally saccate below the middle ; petals erect, obliquely oblong, incurved at the apex and arching over the anther, the posterior margin erosulate, 1-1.3 cm. long ; lip spreading-deflexed linear acute, 1 cm. long ; rostellum erect 3lobed, the gland-bearing divaricate, furnished behind with a petaloid appendage, the intermediate obtuse concave ; anther ascending.

Described from several dried and living specimens

## TAB. 86.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa venosa**, Swartz in *Kongl. Vetensk. Acad. Handl.*, vol. xxi. (1800), 213, *not of Lindl.*—Herba erecta gracilis glabra, 20-50 cm. alta ; caulis strictus vel flexuosus, basi foliatus ; folia radicalia 3-4 oblonga acuta, 3-5 cm. longa ; caulina similia in vaginas sub remotas acutas sensim transeuntia ; racemus laxe 2-4florus, floribus adscendentibus ; bracteæ erectæ ovatæ acuminatæ, ovario paullo longiores ; sepala lateralialia patentia ovato-oblonga acuta, 1·5-2 cm. longa ; sepalum impar erectum concavum subgaleatum ore rhomboideo-cuneatum, dorso infra medium saccatum ; petala erecta oblonga, apice incurva dentataque, antice lobata, 0·9 cm. longa ; labellum porrecto-deflexum lineare acutum, petalis subæquilongum ; rostellum erectum trilobum, glanduliferis incurvis ideoque glandulis oppositis, appendice petaloidea postice ornatis, intermedio obtuso concavo ; anthera erecta. (*Ex exempll. plur. viv. exsiccatisque.*) *D. racemosa*, Sw. var. *venosa* Schltr. in *Engl. Bot. Jahrb.*, vol. xxxi. (1902), p. 227.

**Hab. : South-western Region ;** CAPE COLONY : moist places in sheltered ravines on the eastern slopes of the mountains of the Cape Peninsula, alt. 610-914 met., fl. Dec., *Harvey*, *Bolus*, 4845, *R. Schlechter*, 451 ; mountains near Du Toit's Kloof, alt. 610 met., fl. Dec., *Drège* ; foot of the mountains round French Hoek, alt. 390 met., fl. Nov., *Bolus*, 5274, *R. Schlechter*, 9311 ! Krakadouw Pass, Cederbergen, alt. 914 met., fl. Jan., *C. L. Leopoldt*, 603 !

**Plate 86.** Fig. 1, flower, side view ; 2, column and petals, front view ; 3, odd sepal, front view ; 4, one of the petals ; 5, column, side view ; 6, one of the pollinia.

An erect slender glabrous herb, 20-50 cm. high ; stem straight or flexuose, leafy at the base ; radical leaves 3-4 oblong acute, 3-5 cm. long, cauline similar, gradually passing off into the rather remote acute sheaths ; raceme laxly 2-4 flowered, flowers ascending ; bracts erect ovate acuminate, a little longer than the ovary ; lateral sepals spreading ovate-oblong acute, 1·5-2 cm. long ; odd sepal

erect concave subgaleate rhomboid-cuneate in outline, dorsally saccate below the middle; petals erect oblong, incurved at the apex and dentate, lobed in front, 0·9 cm. long; lip spreading-deflexed, linear acute, about as long as the petals; rostellum erect 3lobed, gland-bearing lobes incurved, so that the glands are opposite, furnished posticously with a petaloid appendage, intermediate lobe obtuse concave; anther erect.

Described from several living and dried specimens.

Opinions have differed as to whether this species is sufficiently distinct from *D. racemosa* (see the previous figure). I think it is, but I admit that there is room for difference of opinion and I cannot plead that such difference is due in this case (as it so often is) to the fact that some of those who differ have not seen the plant in its living state, since my friend, Dr. Schlechter, than whom I know of no more competent judge, regards it (*Monogr. der Disæ. Engl. Bot. Jahrb.*, xxxi., 227) as a mere var. of *D. racemosa* L.f. I would urge, however, that the difference in the shape of the odd sepal, in the relative position of the glands of the pollinia (those of *D. venosa* facing each other, while those of *D. racemosa* are in the usual position facing the front of the flower), taken in conjunction with the greater robustness of *D. racemosa*, constitute strong arguments for the maintenance of this species.



## TAB. 87.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa oligantha**, *Reichenbach fil. in Flora* (1865), p. 182.—Herba gracilis pusilla glabra; caulis erectus strictus vel subflexuosus foliatus 5·5-14 cm. altus; folia radicalia 3-5, erecto-patentia oblanceolata acuta basin versus longe attenuata in petiolum vaginans, 1·5-4·5 cm. longa, in vaginas acuminatas sensim transeuntia; racemus subcorymbosus 2-4-florus, floribus in genere inter minores, erectis vel adscendentibus; bracteæ erectæ lanceolatae acuminatae, ovario paullo longiores; sepala lateralialia adscendentia incurva concava suboblique obovata obtusa, 0·7 cm. longa; sepalum impar horizontale, circuitu manu explicatum transverse ellipticum, lateralibus paullo brevius 3lobum, lobis lateralibus erectis late rotundatis, intermedio cucullato obtuso apice incurvo; petala horizontalia carnosa circuitu obovata truncata, apice antice lobata, lobo inflexo, 0·4 cm. longa; labellum posticum porrectum lineare obtusum, petalis æquilongum; rostellum erectum 3lobum, glanduliferis brevissimis, intermedio concavo reflexo; anthera horizontalis; ovarium rectum nec tortum.—(*Ex exempll. plur. viv. exsiccatisque*). *Penthea triloba*, *Sonder in Linnæa*, xix. (1847) 104; *D. parvilabris*, *Bolus in Journ. Linn. Soc.*, v. xix. (1882), 344.

**Hab:** **South-western Region**; CAPE COLONY: in grassy places, summit of Table Mt. near Maclear's Beacon, alt. 1081 met., fl. Dec., *A. A. Bodkin*, in my herb.; same place and month, *Wolley-Dod*, 2338! same place and month, *Dr. R. Marloth* (No. 7984 in my herb.); Jonker's Hoek, distr. Stellenbosch, *Dr. Marloth*!

**Plate 87.** Figs. 1, 2, flower, oblique view; 3, ditto, posticous view, shewing the posticous lip; 4, one of the petals flattened out; 5, ditto, natural position; 6, odd sepal side view, anticous side on the right; 7, 7, lip from different flowers; 8, column, with one petal in situ.; 9, one of the pollinia.

A dwarf slender glabrous herb. 5·5-14 cm. high; stem erect straight or subflexuous, leafy; radical leaves, 3-5, erect-spreading, oblanceolate, acute, towards the base long attenuate into a sheathing petiole, 1·5-4·5 cm. long, gradually passing upward

into acuminate sheaths; raceme subcorymbose 2-4flowered, flowers amongst the smaller ones in the genus, erect or ascending; bracts erect lanceolate acuminate, a little longer than the ovary; lateral sepals ascending incurved concave, somewhat obliquely obovate obtuse, 0.7 cm. long; odd sepal horizontal, when flattened out by hand in outline transversely elliptical, a little shorter than the lateral, 3lobed, lateral lobes erect broadly rounded, intermediate cucullate obtuse, incurved at the apex; petals horizontal fleshy, obovate in outline, truncate, lobed in front at the apex, the lobe inflexed, 0.4 c.m. long; lip posticous porrect linear obtuse, as long as the petals; rostellum erect 3lobed, the gland-bearing lobes very short, intermediate concave reflexed; anther horizontal; ovary straight—not twisted.

Described from several dried and living specimens. Closely allied to *D. Richardiana* Lehmann, but easily distinguished by the 3lobed odd sepal which is most unusual in the genus.

## TAB. 88.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa macrostachya**, *Bolus in Journ. Linn. Soc., vol. xxv.* (1890), *p.* 197.—Herba erecta glabra, 15-35 cm. alta; caulis strictus vel subflexuosus, foliatus; folia erecta linearia vel linearilanceolata, acuminata, 5-10 cm. longa; spica cylindrica laxiuscule multiflora, floribus adscendentibus; bracteæ erectæ membranaceæ reticulatæ late ovatæ, longe cuspidatæ, cuspidē torta, flores sæpius excedentes; sepala lateralialia deflexa oblonga obtusa, 0·6 cm. longa; sepalum impar erectum galeato-concavum, ore obovato vel oblongo, lateralibus subæquilongum, dorso in calcar pendulum filiforme, ovario paullo brevius vel æquilongum, productum; petala erecta oblique ovata subfalcata subacuta, 0·5 cm. longa; labellum deflexum carnosum oblongo ligulatum obtusum, 0·6 cm. longum; rostellum erectum subquadratum utrinque tuberculatum, rima tenui inter id et stigma; anthera resupinata; glandula pollinium unica. (*Ex exemplari unico viv., pluribusque exsiccatis.*)—*Monadenia macrostachya*, *Lindley, Gen. & Sp. Orch.* (1838), *p.* 357; *D. reticulata*, *Bolus, in Journ. Linn. Soc., vol. xxii.* (1844), *p.* 73; *Orch. Cape Penins.* (1888), *t.* 16; *M. reticulata*, *Dur. & Schinz., Conspect. Flor. Afr., v.* (1895), *p.* 112.

**Hab: South-western Region; CAPE COLONY:** Slopes of Table Mt., alt. 854 met., fl. Dec., *Bolus*, 4897; Constantiaberg, near Tokay, alt. 610 met., fl. Dec., *A Bodkin!* (No. 4988 in my herb.); Steenberg, fl. Nov., *A. H. Wolley Dod*, 2179!; Mts. near Onrust River, Caledon district, alt. 762 met., fl. Nov., *R. Schlechter*, 9502!; stony places, Montagu Pass, alt. 610 met., fl. Nov., *R. Schlechter*, 5791!

**Plate 88.** Fig. 1, flower, side view; 2, ditto, front view; 3, one of the petals; 4, odd sepal; 5, 5, petals; 6, lip; 7, column, side view; 8, ditto, front view; 9, pollinarium—all variously magnified.

An erect glabrous herb, 15-35 cm. high; stem straight or somewhat flexuous, leafy; leaves erect linear or linear-lanceolate,

acuminate, 5-10 cm. long ; spike cylindrical, rather laxly many-flowered, flowers ascending ; bracts erect membranous, reticulately veined, broadly ovate, with a long twisted cusp, usually longer than the flowers ; lateral sepals deflexed oblong obtuse, 0·6 cm. long ; odd sepal erect galeate-concave, mouth obovate or oblong, about as long as the lateral, produced at the back into a pendulous filiform spur, a little shorter than or as long as the ovary ; petals erect, obliquely ovate, subfalcate subacute, 0·5 cm. long : lip deflexed fleshy oblong-ligulate obtuse, 0·6 cm. long ; rostellum erect subquadrate, tuberculate on each side, with a slight cleft between it and the stigma ; anther resupinate ; gland of the pollinia solitary.

Described from several dried specimens and a living one collected by Dr. R. Schlechter in Montagu Pass, from which also the drawing was made.

This species was figured in the "Orchids of the Cape Peninsula," under Tab. 16, as *D. reticulata* Bolus.

## TAB. 89.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa rufescens**, Swartz in *Kongl. Vet. Acad. Handl.* (1800), p. 210.—Herba erecta glabra gracilis vel subrobusta, 12-40 cm. alta; caulis strictus, basi foliatus; folia erecta lanceolata acuta, 6-8 cm. longa, sensim in vaginas erectas sursum transeuntia; spica cylindrica, laxiuscule multiflora, 6-20 cm. longa, floribus adscendentibus; bracteæ erectæ herbaceæ ovatæ acuminatæ, ovaria superantes; sepala lateralìa erecta vel patenti-recurva, oblonga obtusa, 0·6-0·7 cm. longa; sepalum impar erectum oblongo-galeatum obtusum, sepalis lateralibus æquilongum, basi in calcar subfiliforme stricte dependens, 1·6-1·8 cm. longum, productum; petala erecta ovato oblonga sepalis subæquilonga; labellum patenti-deflexum linguiforme obtusum; rostellum erectum semi-lunatum, brachiis acutis, stigma superans, rima inter id et stigma tenuissima vix perspicua; anthera valde resupinata; stigma excavatum. (*Ex exempl. unico viv. sub numero 4551 lecto, delineatoque plur. exsiccatisque.*)—*Monadenia macrocera*, Lindl., *Gen. & Sp. Orch.* (1838), p. 358; *M. leptostachya*, Sonder in Linn. xix. (1847), p. 101; *M. rufescens*, Dur. & Schinz, *Consp. fl. Afr.* v. (1895); *Satyrium rufescens*, Thunb. *Prodr. Pl. Cap.* (1794), p. 5.

**Hab.:** **South-western Region;** CAPE COLONY: Sandy flats, usually in damp spots between Claremont and Wynberg, near Capetown, alt. 15-30 met., fl. Aug.-Sept., *Bolus*, 4551, *Schlechter*, 1550; Table Mt., lower plateau, alt. circ. 760 met., fl. Oct., *Bolus*, 4969; Kloof, near Wynberg Reservoir, on Table Mt., fl. Oct., *Wolley Dod*, 3066!; near the Matroosberg, dist. Worcester, early Oct., *J. D. C. Lamb*!; Sandy places near Groene Kloof, dist. Malmesbury, *Thunberg*.

**Plate 89.** Fig. 1, flower, side view; 2, ditto, front view; 3, one of the lateral sepals; 4, odd sepal; 5, petals and lip in situ; 6, lip; 7, one of the petals; 8, column and one petal, side view; 9, column, front view; 10, pollinarium.

An erect glabrous slender or somewhat robust herb, 12-40 cm. high; stem straight, leafy at base; leaves erect lanceolate acute,



6-8 cm. long, gradually passing off upwards into the erect sheaths . spike cylindrical, rather laxly many-flowered, 6-20 cm. long, flowers ascending ; bracts erect herbaceous ovate acuminate, longer than the ovary ; lateral sepals erect or spreading-recurved, oblong obtuse, 0·6-0·7 cm. long ; odd sepal erect oblong-galeate obtuse, as long as the lateral sepals, produced at base into a subfiliform straight pendulous spur, 1·6-1·8 cm. long ; petals erect ovate-oblong, as long as the sepals ; lip spreading-deflexed linguiform obtuse ; rostellum erect semi-lunate, gland-bearing arms acute, exceeding the stigma, the cleft between it and the stigma very slight or hardly perceptible ; anther strongly resupinate ; stigma excavate.

Described from several dried specimens and a living one, under my number 4551, from which the drawing was made.



## TAB. 90.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa Bolusiana**, *Schlechter in Engl. Bot. Jahrb. vol. xxiv.* (1898). 430.—Herba erecta glabra, 12-25 cm. alta; caulis sæpius strictus rarius subflexuosus, basi foliatus supra medium vaginis 3-4 arcte appressis acutis dense vestitus; folia 3-4 patentia vel sæpius erecta lanceolata acuta, 4-6 cm. longa; spica oblonga vel cylindrica, 6-11flora, floribus adscendentibus; bracteæ ovatæ acuminatæ, ovarium æquantes vel paullo superantes; sepala lateralialia patenti-recurva, oblique ovata obtusa, 0·8 cm. longa; sepalum impar erectum, lateralibus æquilongum, cucullato-galeatum, ore oblongo, basi in calcar dependens subcylindricum obtusum ovarium paullo superans productum, ostio calcaris infundibuliformi; petala erecta, oblique ovato-oblonga, apice obscure biloba, 0·6 cm. longa; labellum deflexum linguiforme obtusum, petalis æquilongum; rostellum erectum, brachiis obtusis utrinque auriculata, rima profunda inter id et stigma; anthera valde resupinata; glandula unica; stigma rostellum paullo superans. (*Ex exempl. unico vivo sub numero 4903 delineato, plur. exsiccatisque.*)

*Hab.*: **South-western Region**; CAPE COLONY: Grassy places summit of Table Mt. just below Maclear's beacon, alt. 1066 met., fl. Jan., *W. C. Scully*! (No. 4903 in my herb.); same place, *A. A. Bodkin*! slopes of the Langebergen, above Zuurbraak, ditone Swellendam, alt. 940 met., fl., Jan., *R. Schlechter*.

**Plate 90.** Fig. 1, flower, side view; 2, odd sepal; 3, one of the lateral sepals; 4, one of the petals; 5, lip; 6, column, side view; 7, ditto, seen from above; 8, pollinarium; 9, flower, front view—all variously magnified.

An erect glabrous herb, 12-25 cm. high; stem usually straight, more rarely subflexuous, leafy at base, clothed above the middle with 3-4, closely appressed, acute imbricating sheaths; leaves 3-4 spreading or more often erect lanceolate acute, 4-6 cm. long; spike oblong or cylindrical, 6-11flowered, flowers ascending; bracts ovate acuminate, as long as or a little longer than the ovary;

lateral sepals spreading-recurved, obliquely ovate obtuse, 0·8 cm. long; odd sepal erect, as long as the lateral, cucullate-galeate, mouth oblong, produced at base into a pendulous subcylindrical obtuse spur, a little longer than the ovary, the mouth of the spur infundibuliform; petals erect, obliquely ovate-oblong, obscurely bilobed at the apex, 0·6 cm. long; lip deflexed linguiform obtuse, as long as the petals; rostellum erect, gland-bearing arms obtuse, auriculate on each side, with a deep cleft between it and the stigma; anther strongly resupinate; gland solitary; stigma a little higher than the rostellum.

Described from a living specimen under my number 4903, from which also the drawing was made, and from several dried specimens. This plant has given considerable difficulty in the past as having been erroneously taken for *D. rufescens* Sw., and we are indebted to Dr. Schlechter and Mr. N. E. Brown, of the Kew Herbarium, for clearing up the difficulty by a careful examination of Thunberg's type specimen in Swartz's collection. This establishes the differences between that and the present species which may be briefly expressed as follows:—(1) In this species the cleft between the stigma and the rostellum is remarkably deeper, and the stigma is slightly higher than the rostellum; (2) the presence of auricles on the rostellum and the obtuse gland-bearing arms; (3) the wider infundibuliform orifice of the spur.

## TAB. 91.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus DISA.

**Disa cernua**, *Swartz in Kongl. Vetensk. Acad. Handl.*, vol. xxi. (1800), p. 211.—Herba robusta erecta glabra, 20-50 cm. alta; caulis strictus validus foliatus; folia erecto-patentia linearilanceolata acuta, 10-18 cm. longa; spica cylindrica, dense multiflora, 8-25 cm. longa, 2·5-3·5 cm. diametro; bracteæ erecto-patentes foliaceæ lanceolatæ acutæ sæpius floribus breviores; sepalum lateralialia deflexa oblonga obtusa, 1 cm. longa; sepalum impar cucullato-galeato, ore obovato-oblongo, basi in calcar pendulum inflatum obtusissimum, ovario multo brevius productum; petala erecta, oblique ovato-oblonga, basi dorso ampliata; labellum deflexum linguiforme obtusum, sepalis æquilongum; rostellum adscendens, brachiis glanduliferis obtusis, alis patenti-reflexis ornatum, rima inter stigma et rostellum obsoleta; anthera valde resupinata; glandula unica semi-lunata. (*Ex exempl. unico vivo pluribusque exsiccatis.*)—*Disa physodes*, *Swartz in Kongl. Vetensk. Acad. Handl.*, vol. xxi. (1800), p. 212; *D. prasinata*, *Ker in Bot. Reg.* iii. (1817), t. 210; *D. densiflora*, *Bolus in Journ. Linn. Soc. Bot.*, vol. xxv. (1890), p. 197; *Monadenia prasinata*, *Lindl. Gen. & Sp. Orch.* (1838), p. 358; *M. densiflora*, *Lindl. Gen. & Sp. Orch.* (1838), p. 357; *M. inflata*, *Sond in Linnæa* xix. (1847), p. 102; *M. physodes*, *Reichb. f. in Flora* (1883), 461; *M. cernua*, *Dur. & Schinz Conspect. Flor. Afr.* 5, p. 111 (1895).

**Hab.:** **South-western Region**; CAPE COLONY: Sandy plains near Wynberg, *Zeyher*, 1569!; lower slopes of Lion Mt., near Sea Point, alt. 60 met., fl. Sept., *Le Sueur* (No. 4973 in my herb.); near "the Commetje," Chapman's Bay, fl. Oct., *Wolley Dod*, 3635!; hills near Malmesbury, alt. 90 met., fl. Oct., *Bolus*, 4336, *R. Schlechter*; near the waterfall, Tulbagh, alt. 120 met., fl. Sept., *R. Schlechter*, 1452; near Groene Vlei, Piquetberg, fl. Oct., *Bolus*, 13466; near Ceres, alt. 455 met., fl. Oct., *Bolus*; Montagu Pass, near George, alt. 365 met., fl. Oct., *E. W. Young* (No. 5534 in my herb.); near Knysna, alt. 6 met., fl. Nov., *R. Schlechter*.

**Plate 91.** Fig. 1, flower, front view; 2, odd sepal; 3, one of the lateral sepals; 4, column with petals in situ, front view;

5, column, side view ; 6, ditto, front view ; 7, ditto, back view ; 8, pollinarium.

An erect robust glabrous herb, 20-50 cm. high ; stem straight stout leafy ; leaves erect-spreading linear-lanceolate acute, 10-18 cm. long ; spike cylindrical densely many-flowered, 8-25 cm. long, 2.5-3.5 cm. in diameter ; bracts erect-spreading, leaf-like lanceolate acute, usually shorter than the flowers ; lateral sepals deflexed oblong obtuse, 1 cm. long ; odd sepal cucullate-galeate, mouth obovate-oblong, produced at base into a pendulous inflated very obtuse spur, much shorter than the ovary ; petals erect, obliquely ovate-oblong, widened dorsally at the base ; lip deflexed linguiform obtuse, as long as the sepals ; rostellum ascending, the gland-bearing arms obtuse, provided with spreading-reflexed wings, the cleft between it and the stigma obsolete ; anther strongly resupinate ; gland solitary, semi-lunate.

Described from several dried specimens and a living one, gathered near Ceres, from which the drawing was made. This was more prettily coloured than those I had seen near Cape Town. It had a very heavy and unpleasant odour.

## TAB. 92.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SCHIZODIUM.

**Schizodium flexuosum**, *Lindl., Gen. & Sp. Orch.* (1838), *p.* 359.

—Herba gracilis erecta glaberrima, 15-32 cm. alta; folia 3-6, radicalia patentia spathulato-oblonga vel subovata acuta vel obtusa, basi in petiolum vaginantem angustata, 1-2 cm. longa; scapus tenuis rigidus politus basi precipue valde flexuosus, vaginis 3-6, foliaceis erectis distantibus vestitus; racemus laxe 2-6florus, floribus in genere maximis, erectis; bracteæ ovato-lanceolatae acutæ subcucullatae herbaceæ, pedicellum paullo superantes; sepala lateralialia patentia, late obovata, obtusissima, 1.1 cm. longa; sepalum impar erectum, suborbiculare, marginibus subito reflexis, basi in calcar recurvum, 0.3 cm. longum productum; petala erecta e basi oblique ovata linearia subobtusa, sepalo impari subæqualia; labellum subpanduriforme porrectum, hypochilio concavo abbreviato, mesochilio ampliato undulato, epichilio rostrato deflexo acuminato; rostellum erectum. (*Ex exempl. unico vivo pluribusque exsiccatis.*)—*Orchis flexuosa*, *Linn. Spec. Plant.* (1764), 1331; *Satyrium flexuosum*, *Thunb. Prodr. Pl. Cap.* (1794), *p.* 5; *Disa flexuosa*, *Swartz in Kongl. Vet. Acad. Handl.* xxi, (1800), *p.* 212.

**Hab. : South-western Region ;** CAPE COLONY : Sandy downs between Cape Town and Wynberg, alt. 15-30 met., *Ecklon & Zeyher, A. Bodkin*; near Paarl, alt. 120 met., fl. Oct., *MacOwan*, in *Herb. Norm. Aust.-Afr.*, 172!; damp places between Groene Kloof and Malmesbury, alt. 120 met., fl. Oct., *Bolus*, 4332; near Hopefield, alt., 45 met., fl. Sept., *R. Schlechter*, 5309; mountains near the Tulbagh waterfall, alt. 185 met., fl. Aug., *R. Schlechter*; mountain slopes, Hex R. Valley, alt. 486 met., fl. Oct., *W. Tyson*, 642!; near Nieuwoudtville, Calvinia, fl. Sept., *C. L. Leipoldt*, 928!

**Plate 92.** Fig. 1, flower, side view; 2, 2, petals; 3, side sepals and lip, front view; 4, petals and column, front view; 5, column, side view; 6, ditto, front view; 7, one of the pollinia.

An erect slender very glabrous herb, 15-32 cm. high; leaves 3-6, radical, spreading, spathulate-oblong or subovate acute or obtuse, narrowed at the base into a sheathing petiole, 1-2 cm.



long ; scape wiry rigid polished, strongly flexuous, especially at the base, furnished with 3-6 leaf-like erect distant sheaths ; raceme laxly 2-6flowered, flowers erect, the largest in the genus ; bracts ovate-lanceolate acute subcucullate herbaceous, a little longer than the pedicels ; lateral sepals spreading, broadly obovate, very obtuse, 1.1 cm. long ; odd sepal erect suborbicular, margins suddenly reflexed, produced at base into a recurved spur, 0.3 cm. long ; petals erect, from an obliquely ovate base, linear subobtuse, about as long as the odd sepal ; lip subpanduriform porrect, hypochilium concave abbreviated, mesochilium widened undulate, epichilium deflexed rostrate acuminate ; rostellum erect.

Described from a living specimen and several dried ones.



## TAB. 93.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SCHIZODIUM.

**Schizodium inflexum**, *Lindl., Gen. & Sp. Orch.* (1838), *p.* 360.—Herba erecta gracillima glaberrima, 15-27 cm. alta; folia 4-7, radicalia patentia obovato-oblonga acuta undulata, 1·5-2·5 cm. longa; scapus rigidus tenuissimus politus, in genere minime flexuosus, vaginis 3-5 distantibus erectis acutis subherbaceis vestitus; racemus laxe 2-4-florus, floribus erectis; bracteæ ovato-lanceolatæ acutæ vel acuminatæ, subcucullatæ, pedicellis paullo longiores; sepala lateraliter porrecta oblonga obtusa, 0·7-0·9 cm. longa; sepalum impar erectum concavum, 0·5 cm. longum, dorso in calcar rectum horizontale cylindricum obtusissimum, lateraliter subcompressum, 0·6-0·8 cm. longum, productum; petala erecta oblonga, apice inæqualiter bidenticulata; basi antice ampliata, sepalum impari paullo breviores; labellum deflexum subpanduriforme, hypochilio adscendente concavo, mesochilio convexo ampliato ovato, antice in epichilio involuto filiformi abrupte deflexo desinens. (*Ex exempl. unico vivo pluribusque exsiccatis.*)—*Disa inflexa*, *Mund. ex Lindl., Gen. & Sp. Orch.* (1838), *p.* 360.

**Hab.:** **South-western Region**; CAPE COLONY: Damp places, summit of Table Mt., alt. 730-1066 met., fl. Dec., *Bolus*, 3882, *Wolley Dod*, 2125!; Winterhoeksberg, Tulbagh, fl. Oct., *A. Bolus*; near Houw Hoek, Caledon, alt. 610 met., fl. Oct., *R. Schlechter*, 5488; Garcia's Pass, Riversdale, alt. 430 met., fl. Oct., *Bolus*, *E. Galpin*, 4626!; Krakadouw, Clanwilliam, alt. 915 met., fl. Oct., *A. Bodkin*!; Zwartberg Pass, alt. 1676 met., fl. Dec., *Bolus*, 11647; mountains near Montagu Pass, *Rehmann*, 29.

**Plate 93.** Fig. 1, flower, front view; 2, odd sepal; 3, lip; 4, petals, and column, front view; 5, column, side view.

An erect very slender glabrous herb, 15-27 cm. high; leaves 4-7 radical, spreading, obovate-oblong, acute, undulate 1·5-2·5 cm. long; scape rigid wiry, polished less flexuous than any other species in the genus, furnished with 3-5 distant erect acute, subherbaceous sheaths; raceme laxly 2-4-flowered, flowers erect; bract

ovate-lanceolate acute or acuminate, subcucullate, a little longer than the pedicels, lateral sepals porrect, oblong obtuse, 0·7-0·9 cm. long ; odd sepal erect concave, 0·5 cm. long, produced at the back into a straight horizontal cylindrical obtuse somewhat laterally compressed spur, 0·6-0·8 cm. long ; petals erect oblong, unequally bidenticulate at the apex, widened at the base in front, a little shorter than the odd sepal ; lip deflexed subpanduriform, hypochilium ascending concave, mesochilium widened convex ovate, produced in front into an involute beak-like abruptly deflexed epichilium.

Described from one living and several dried specimens.

## TABB. 94, 95.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SCHIZODIUM.

**Schizodium rigidum**, *Lindley, Gen. & Sp. Orch.* (1838), p. 360.—Herba erecta gracilis glabra, 8-25 cm. alta; folia 4-7 radicalia patentia spathulato-lanceolata acuta vel obtusa, marginibus sæpe undulatis, 1-2·5 cm. longa; scapus flexuosus rigidus tenuis politus, vaginis 2-4 distantibus erectis acutis foliaceis vestitus; racemus 1-4florus, floribus adscendentibus; bracteæ erectæ cucullatæ ovatæ acutæ, pedicellis paullo longiores; sepala lateralialia porrecto-deflexa oblonga obtusa vel subacuta, 0·9-1·5 cm. longa; sepalum impar erectum, concavum oblongum acutum, dorso in calcar apicem versus adscendens cylindricum obtusum, 1·1-1·2 cm. longum productum; petala erecta oblonga, basi antice ampliata, apice inæqualiter dentata, 0·7-1 cm. longa; labellum subpanduriforme patenti-deflexum, hypochilio erecto concavo, mesochilio ampliato undulato, in epichilium filiforme rostratum abrupte deflexum productum. (*Ex exempll. plur. vivis. exsiccatisque.*)

**Hab.:** **South-western Region;** CAPE COLONY: In sandy dunes near Constantia, near Cape Town, alt. 60 met., fl. Sept., *A. Bodkin* (No. 7019 in my herb.); near Sir Lowry's Pass, alt. 120 met., fl. July, *R. Schlechter*, 1175! and *Bolus*, 7481; hills near Swellendam, fl. Aug., *P. Borchers* (No. 6275 in my herb.).

**Plate 94.** Fig. 1, flower, front view; 2, petals and lip, in situ; 3, lip, back view; 4, one of the petals; 5, petals and column, front view; 6, odd sepal; 7, column, front view; 8, ditto, side view; 9, one of the pollinia—all variously magnified.

**Plate 95.** Fig. 1, flower, side view; 2, ditto, front view; 3, odd sepal; 4, lip; 5, petals and column, front view; 6, ditto, side view, one petal removed; 7, one of the petals; 8, one of the pollinia—all variously magnified.

An erect slender glabrous herb, 8-25 cm. high; leaves 4-7, radical spreading spathulate, lanceolate acute or obtuse, margins often undulate, 1-2·5 cm. long; scape flexuous rigid wiry polished,

furnished with 2-4 distant erect acute leaf-like sheaths ; raceme 1-4 flowered, flowers ascending ; bracts erect cucullate ovate acute, a little longer than the pedicels ; lateral sepals porrect-deflexed oblong obtuse or subacute, 0.9-1.5 cm. long ; odd sepal erect concave oblong acute, produced at the back into a cylindrical obtuse spur, ascending towards the apex, 1.1-1.2 cm. long ; petals erect oblong, widened in front at the base, unequally toothed at the apex, 0.7-1 cm. long ; lip subpanduriform spreading-deflexed, hypochilium erect concave, mesochilium widened undulate, produced into the filiform rostrate abruptly deflexed epichilium.

Described from several living and dried specimens.

## TAB. 96.

Tribe OPHRYDEÆ.

Sub-tribe DISEÆ.

Genus SCHIZODIUM.

**Schizodium bifidum**, *Reichenbach fil. in Flora* (1883), *p.* 460.  
 —Herba erecta gracilis glaberrima, 8-28 cm. alta; folia radicalia 3-5 patentia lanceolato-spathulata acuta, 0-8-1-5 cm. longa; scapus valde flexuosus rigidus politus, vaginis 3-4 erectis acutis foliaceis distanter vestitus; bracteæ cucullatæ, pedicellis paullo breviores; sepala lateralialia porrecta oblonga acuta, 0-7-1-2 cm. longa; sepalum impar erectum oblongum subacutum concavum, 0-5-0-9 cm. longum, dorso in calcar rectum patens vel rarius apicem versus adscendens, cylindricum apice inflatum interdum obscure bifid., 0-4-0-6 cm. longum productum; petala erecta ligulata, apice inæqualiter bidentata basi antice ampliata marginibus fimbriatis, 0-3-0-4 cm. longa; labellum subpanduriforme, hypochilio adscendente concavo, mesochilio ovato, in epichilium rostratum involutum abrupte deflexum desinente. (*Ex exempll. plur. viv. exsiccatisque.*) — *Satyrium bifidum*, *Thunb. Prodr. Pl. Cap.* (1794), *p.* 5; *Disa bifida*, *Swartz. in Kongl. Vet. Acad. Handl.*, vol. xxi. (1800), *p.* 212; *Schizodium obtusatum*, *Lindl., Gen. & Sp. Orch.* (1838), *p.* 360; *S. longipetalum*, *Lindl., ibid.* *p.* 359 (*not of Kranzl.*); *S. rigidum*, *Lindl. ibid.*, *p.* 360.

**Hab.: South-western Region;** CAPE COLONY: Sandy flats near Wynberg, alt. 15-30 met., fl. Aug.-Oct., *Ecklon & Zeyher, R. Schlechter*, 1551; damp sandy places, Muizenberg, alt. 370 met., fl. July-Aug., *Bolus*, 7037 and in *Herb. Norm. Aust.-Afr.*, 173; Table Mt., alt. 545-660 met., fl. Aug.-Oct., *R. Schlechter*, 1314; mountain slopes, near Sir Lowry's Pass, alt., 180 met., fl. July, *R. Schlechter*, 1144; mountains above Dutoitskloof, alt. 610-915 met., fl. Oct., *Drège*; hills near Swellendam, fl. Oct., *R. Schlechter*.

**Plate 96.** Fig. 1, flower, side view; 2, one of the lateral sepals; 3, spur; 4, lip, side view; 5, ditto, oblique view; 6, petals in situ; 7, column and petal; 8, one of the petals; 9, one of the pollinia—all variously magnified.

An erect slender very glabrous herb, 8-28 cm. high; leaves radical 3-5, spreading lancœolate spathulate acute, 0-8-1-5 cm.

long ; scape strongly flexuous rigid polished, furnished with 3-4 distant erect acute leaf-like sheaths ; bracts cucullate, a little shorter than the pedicels ; lateral sepals porrect oblong acute, 0.7-1.2 cm. long ; odd sepal erect oblong subacute concave, 0.5-0.9 cm. long, produced at the back into a straight spreading, or more rarely towards the apex, ascending spur, cylindrical, inflated at the apex and sometimes obscurely bilobulate, 0.4-0.6 cm. long ; petals erect ligulate, unequally bidentate at the apex, widened at the base in front and fimbriate on the margin, 0.3-0.4 cm. long ; lip subpanduriform, hypochilium ascending concave, mesochilium ovate, ending in the beaked involute abruptly deflexed epichilium.

Described from several living and dried specimens.



## TAB. 97.

Tribe OPHRYDEÆ.

Sub-tribe HABENARIEÆ.

Genus HUTTONÆA.

**Huttonæa fimbriata**, *Reichb., fil. in Flora* (1867), p. 116.  
—Herba erecta gracilis glabra, 18-30 cm. alta; caulis debilis subflexuosus, distanter bifolius; folia caulina patentia cordato-ovata acuminata longe petiolata, petiolo vaginante, nervis primariis 3-5, 4-7 cm. longa; spica oblonga sub dense 6-11flora, 3-6 cm. longa, floribus erecto-patentibus; bracteae lanceolatae acuminatae, ovariis subaequilongae; sepala lateralibus patentia elliptica obtusissima, breviter unguiculata, lacerato-serrulata, petalis basi adhaerentia, 0.5 cm. longa; sepalum impar ovato-lanceolatum lacerato-serrulatum, 0.4 cm. longum; petala late obovata, basin versus saccata unguiculata, margine alte fimbriata, 0.5 cm. longa; labellum-patenti-deflexum cuneato-flabelliforme, basi saccatum margine alte fimbriatum, petalis aequilongum; anthera oblonga obtusissima. (*Ex exempl. unico vivo pluribusque exsiccatis.*)—*Hallackia fimbriata*, *Harvey, Thesaurus Capensis*, vol. ii. (1863), tab. 102.

**Hab. : South-eastern Region ;** CAPE COLONY : Shady places near Zuurbergen, between Griqualand East and Natal, alt. approx. 1310 met., fl. Feb., *R. Schlechter*, 6614!; in thick bush, Kwenkwe Mt., district Maclear, between Elliot and Maclear, approx. alt. 1585 met., fl. Jan., *Bolus*, 8774. NATAL : without precise locality, *Mrs. J. R. Saunders*! *R. Hallack*.

**Plate 97.** Fig. 1, flower, front view; 2, lip and column, side view; 3, one of the lateral sepals; 4, odd sepal; 5, column, viewed from above—all variously magnified.

An erect slender glabrous herb, 18-30 cm. high; stem weak subflexuous, distantly bifoliate; leaves cauline spreading cordate-ovate acuminate, long petiolate, petiole sheathing, primary nerves 3-5, 4-7 cm. long; spike oblong, rather densely 6-11flowered, 3-6 cm. long, flowers erect-spreading; bracts lanceolate acuminate, about as long as the ovary; lateral sepals spreading elliptical, very obtuse, shortly unguiculate lacerate-serrulate, adhering to

the petals at base, 0·5 cm. long; odd sepal ovate-lanceolate lacerate-serrulate, 0·4 cm. long; petals broadly obovate, saccate towards the base, unguiculate, deeply fimbriate on the margin, 0·5 cm. long; lip spreading-deflexed cuneate-flabelliform, saccate at base, deeply fimbriate, as long as the petals; anther oblong, very obtuse.

Described from a living specimen and several dried ones.

## TAB. 98.

Tribe NEOTTIEÆ.

Sub-tribe CORYMBIEÆ.

Genus CORYMBIS.

**Corymbis Welwitschii**, *Reich. f. in Flora* (1865), p. 183.—  
Herba terrestris erecta glabra, 0·9-1·8 met. alta ; caulis substrictus foliosus ; folia caulina adscendentia elliptico-lanceolata acuminata, basi in petiolum vaginantem attenuata, subplicata, marginibus minute crenulatis, nervis primariis 8-9, subtus prominentibus, ad 25 cm. longa, 6 cm. lata ; paniculæ axillares, subcorymboideæ laxæ 4-12floræ ; bracteæ ovato-lanceolatae acuminatae 1-1·8 cm. longæ ; sepala demum patentia elongato-linearia acuta 6·5 cm. longa ; petala sepalis simillima sed apice paullo latiora, alba ; labellum erectum petalis sub conforme, apice ovatum acuminatum ; columna elongata teres, per totam longitudinem labelli incumbens, 6 cm. longa. (*Ex exempll. plur. exsiccatis sub num. 8703.*)

*Hab.*: **South-eastern Region** ; CAPE COLONY : In swampy shady places near the mouth of the St. John's or Umzimvubu River, approx. alt. 50 met., fl. Feb., *H. G. Flanagan* (No. 8703 in my herb.).

**Plate 98.** Fig. 1, upper portion of lip, x2 ; 2, upper portion of column, front view, x4, *a*, anther, *g*, gland, *r*, rostellum, *s*, stigma, *p*, pollinia ; 3, ditto, back view ; 4, pollinia, front view, x4 ; 5, ditto, back view ; 6, sketch of whole plant, reduced.

An erect terrestrial glabrous herb, 0·9-1·8 met. high ; stem rather straight leafy ; leaves cauline ascending elliptic-lanceolate acuminate, narrowed at base into a sheathing petiole, somewhat plicate, minutely crenulate on the margins, primary nerves 8-9, prominent beneath, up to 25 cm. long, 6 cm. broad ; panicles axillary subcorymbose, laxly 4-12flowered ; bracts ovate-lanceolate acuminate, 1-1·8 cm. long ; sepals spreading elongate-linear acute green 6·5 cm. long ; petals very like the sepals, but a little broader at the apex, white ; lip erect like the petals, ovate at the apex, acuminate ; column elongate terete, incumbent on the lip, 6 cm. long.

Described from several dried specimens, and from notes made on the living plant.



## TAB. 99.

Tribe OPHRYDEÆ.

Sub-tribe CORYCIEÆ.

Genus PTERYGODIUM.

**Pterygodium leucanthum**, *Bolus in Trans. S. A. Philosoph. Soc.*, vol. xvi, part 2 (1905), p. 150.—Herba erecta glabra, 15-35 cm. alta; caulis gracilis subflexuosus, foliatus; folia 4-5, erecto-patentia, ovato-lanceolata, acuta, siccitate membranacea venosaque ad 8 cm. longa; racemus laxe 7-10florus; bracteæ erectæ lanceolatae acuminatae floribus subæquilongæ; sepala lateralialia patentia cymbiformia acuta, margine anteriori obscure unidentata, circ. 0·8 cm. longa; sepalum impar erectum oblongum obtusissimum, basi angustatum, cum petalis adhærentibus concavis cucullum suborbiculare efformans, sepalis lateralibus æquilongum; petala semi-orbicularia, basi modice gibbosa; labellum abbreviatum oblongum, latius quam longum, bilobulatum emarginatumve lobulis rotundatis, sursum in appendicem erectum oblongum carnosum, apicem versum sensim angustatum bifidum, productum, lobulis deflexis, uncinato incurvis, incrassatis, subdivaricatis, obtusis discoloribus. (*Ex exempll. plur. viv.*)

**Hab.:** **South-eastern Region**; CAPE COLONY: Steep rocky places on the Engcobo Mt., Fingoland, alt. 1340 met., fl. Jan., *Bolus*, 8704! and *H. G. Flanagan!*; also on the slopes of the Kwenkwe Mt., near the Gatsberg, district Maclear, alt. 1676 met., fl. Jan., *H. G. Flanagan*; ORANGE FREE STATE: grassy slopes of Mapedi's Peak, Witzie's Hoek, alt. 2500-2600 met., fl. Feb. *J. Thode*, 57b.

**Plate 99.** Fig. 1, flower, front view; 2, ditto, back view; 3, one of the side sepals; 4, odd sepal; 5, one of the petals; 6, column and lip, front view; 7, ditto, side view; 8, ditto, back view; 9, one of the pollinia—all variously magnified.

A glabrous erect herb, 15-35 cm. high; stem slender subflexuous leafy; leaves 4-5 erect spreading ovate-lanceolate, acute, membranous and veined when dry, up to 8 cm. long; raceme axly 7-10flowered; bracts erect lanceolate acuminate, about as long as the flowers; lateral sepals spreading cymbiform acute, obscurely unidentate on the anterior margin, about 0·8 cm. long;

odd sepal erect oblong, very obtuse, narrowed at base, forming with the adhering concave petals a suborbicular hood, as long as the lateral sepals ; petals semiorbicular, slightly gibbous at base ; lip abbreviated oblong, broader than long, bilobulate or emarginate, lobes rounded, produced above into an erect oblong fleshy appendage, which is gradually narrowed towards the apex and bifid, the lobes deflexed uncinately incurved, thickened, subdivaricate, obtuse, discoloured.

Described from several living specimens.



## TAB. 100.

Tribe OPHRYDEÆ.

Sub-tribe CORYCIEÆ.

Genus PTERYGODIUM.

**Pterygodium deflexum**, *Bolus in Trans. S. Afr. Philosoph. Soc.*, vol. xvi. (1905), *part* 2, *p.* 151.—Herba erecta glabra, 12-20 cm. alta; caulis validus subflexuosus, foliatus; folia 4-6, erecto-patentia, e basi lata, vaginante membranacea linearia acuminata, 6-10 cm. longa, superiora sensim minora; spica sub-laxe, 5-20flora, 4-7 cm. longa, 2·3-2·7 cm. diam., floribus erecto-patentibus; bracteæ ovatæ acutæ membranaceæ venosæ, medio transverse plicato-constrictæ, floribus paullo breviores; sepala lateraliter antica, in laminam late ovatam deflexo-patentem 0·75 cm. longam coalita, lobis obtusis, marginibus leviter inflexis; sepalum impar obcuneato-oblongum obtusissimum, 0·8 cm. longum, cum petalis adhærentibus, saccum efformans, ore suborbiculari, 9 cm. lata, basi bene gibbosum, ultra apicem ovarii productum; labellum e basi cuneata unguiculatum, subreniforme, bilobum, 0·5 cm. longum, apice 0·6 cm. latum, lobis divaricato-patentibus obtusis, appendice erecta carnosa lineari, apice biloba, lobis subulatis acuminatis curvis abrupte deflexis, floris basin fere attingentibus. (*Ex exempl. pluribus vivis.*)

*Hab.* **South-western Region**; CAPE COLONY: District Clanwilliam, open hillsides, Koudeberg, near Wupperthal, alt. circ. 762 met.; fl. Oct., *Bolus*, 8660.

**Plate 100.** Fig. 1, flower, front view; 2, ditto, side view; 3, odd sepal; 4, side sepals, the two united; 5, one of the petals; 6, column and lip, side view; 7, ditto, back view; 8, lip, with part of column, front view; 9, one of the pollinia—all variously magnified.

An erect glabrous herb, 12-20 cm. high; stem stout, subflexuous, leafy; leaves 4-6, erect-spreading linear acuminate, broader and sheathing at base, 6-10 cm. long, the upper ones becoming gradually smaller; spike somewhat laxly 5-20flowered, 4-7 cm. long, 2·3-2·7 cm. diam., flowers erect-spreading; bracts ovate acute, membranous veined, transversely plicate, constricted in the middle, a little shorter than the flowers; lateral sepals

anticous, united into a broadly ovate deflexed-spreading blade, 0.75 cm. long, lobes obtuse, slightly inflexed at the margins; odd sepal obcuneate-oblong, very obtuse, 0.8 cm. long, adhering to the petals and with them forming a sac, mouth suborbicular, 9 cm. wide, gibbous at base, produced beyond the apex of the ovary; lip unguiculate, cuneate at base, subreniform bilobed, 0.5 cm. long, 0.6 cm. wide at the apex, lobes divaricately spreading obtuse, appendix erect fleshy linear, bilobed at the apex, lobes subulate acuminate curved, abruptly deflexed, almost reaching to the base of the flower.

Described from several living specimens.

## INDEX TO VOLUME II.

*Synonyms and species mentioned incidentally only, are printed in italics.*

	TAB. No.		TAB. No.
<i>Acrolophia, cochlearis, Schlechter</i>	-	<i>Disa cornuta, Swartz</i>	- 81
<i>and Bolus</i>	- 8	<i>cornuta, Kränzl. not of</i>	82, 83
<i>fimbriata, Schlechter</i>	- 8	<i>Swartz</i>	-
<i>micrantha, Schlechter</i>	-	<i>cylindrica, Swartz</i>	- 73
<i>and Bolus</i>	- 8	<i>densiflora, Bolus</i>	- 91
<i>Angraecum, arcuatum, Lindl.</i>	- 1	<i>draconis, Swartz</i>	- 74
<i>bicaudatum, Lindl.</i>	- 3	<i>filicornis, Thunb.</i>	- 68
<i>conchiferum, Lindl.</i>	- 4	<i>flexuosa, Swartz</i>	- 92
<i>Mystacidii, Reichb. f.</i>	- 2	<i>gladioliflora, Burch.</i>	- 79
<i>Saundersiae, Bolus</i>	- 2	<i>grandiflora, Linn. f.</i>	- 63
<i>Ansellia Africana, Lindl.</i>	- 29	<i>inflexa, Mund.</i>	- 93
<i>gigantea, Reichb. f.</i>	- 29	<i>lugens, Bolus</i>	- 76
<i>Bonatea clavata, Lindl.</i>	- 43	<i>macroglossis, Sond.</i>	- 77
<i>foliosa, Lindl.</i>	- 46	<i>macrostachya, Bolus</i>	- 88
<i>micrantha, Lindl.</i>	- 42	<i>Marlothii, Bolus</i>	- 67
<i>speciosa, Willd.</i>	- 44	<i>melaleuca, Swartz</i>	- 66
<i>Calanthe natalensis, Reichb. f.</i>	- 7	<i>modesta, Reichb. f.</i>	- 71
<i>sylvatica, var. natalensis,</i>	-	<i>natalensis, Lindl.</i>	- 84
<i>Reichb. f.</i>	- 7	<i>oligantha, Reichb. f.</i>	- 87
<i>Corymbis Welwitschii, Reichb. f.</i>	98	<i>oreophila, Bolus</i>	- 78
<i>Cymbidium aculeatum, Swartz</i>	- 25	<i>parvilabris, Bolus</i>	- 87
<i>Buchanani, Reichb. f.</i>	19	<i>patens, Thunb.</i>	- 69
<i>giganteum, Swartz</i>	- 13	<i>physodes, Swartz</i>	- 91
<i>pedicellatum, Swartz</i>	- 25	<i>polygonoides, Lindl.</i>	- 84
<i>plicatum, Lindl.</i>	- 25	<i>prasinata, Ker</i>	- 91
<i>Cynorchis compacta, Reichb. f.</i>	- 28	<i>racemosa Linn.</i>	- 85
<i>Cyrtopera Oliveriana, Reichb. f.</i>	- 10	" <i>var. venosa,</i>	-
<i>pedicellata, Lindl.</i>	- 25	<i>Schlechter-</i>	- 86
<i>Derameria Culveri, Schlechter</i>	- 40	<i>reticulata, Bolus</i>	- 88
<i>Disa æmula, Bolus</i>	- 82, 83	<i>Richardiana, Lehm.</i>	- 87
<i>bifida, Swartz</i>	- 96	<i>rosea, Lindl.</i>	- 64
<i>bivalvata, Dur. and Schinz</i>	66	<i>rufescens, Swartz</i>	90, 89
<i>Bolusiana, Schlechter</i>	- 90	<i>Schlechteriana, Bolus</i>	- 75
<i>capricornis, Reichb. f.</i>	- 79	<i>Scullyi, Bolus</i>	- 65
<i>cernua, Swartz</i>	- 91	<i>secunda, Swartz</i>	- 85
<i>Charpentieriana, Reichb. f.</i>	77	<i>Telipogonis, Reichb. f.</i>	- 70
<i>Cooperi, Reichb. f.</i>	- 65	<i>tenella, Swartz</i>	- 72
" <i>var. Scullyi,</i>	-	<i>Thodei, Kränzl.</i>	- 65
<i>Schlechter</i>	- 65	<i>Tysonii, Bolus</i>	- 80
		<i>uniflora, Berg.</i>	- 63
		<i>vaginata, Harv.</i>	- 71
		<i>venosa, Swartz</i>	- 86

# INDEX.

	TAB. No.		TAB. No.
<i>Epiphora pubescens</i> , Lindl.	- 30	<i>Lissochilus Buchanani</i> , Reichb. f.	23
<i>Eulophia aculeata</i> , Spreng.	- 25	„ <i>parviflorus</i> , Lindl.	- 12
<i>Eulophia æmula</i> , Schlechter	- 16	„ <i>platypetalus</i> , Lindl.	- 22
„ <i>æqualis</i> , Bolus	- 21	„ <i>speciosus</i> , R. Brown	- 13
„ <i>bicolor</i> , Reichb. f.	- 24	„ <i>streptopetalus</i> , Lindl.	- 12
„ <i>Buchanani</i> , Bolus	- 23	<i>Listrostachys arcuatus</i> , Reichb. f.	1
„ <i>Buchanani</i> , Reichb. f.	- 19	<i>Monadenia cernua</i> , Dur. & Schinz	91
„ <i>capensis</i> , Bolus	- 25	„ <i>densiflora</i> , Lindl.	- 91
„ <i>clavicornis</i> , Lindl.	- 18	„ <i>inflata</i> , Sond.	- 91
„ <i>cochlearis</i> , Lindl.	- 8	„ <i>leptostachya</i> , Sond.	- 89
<i>Eulophia Dregeana</i> , Lindl.	- 9	„ <i>macrocera</i> , Lindl.	- 89
„ <i>emarginata</i> , Lindl.	- 18	„ <i>macrostachya</i> , Lindl.	- 88
„ <i>ensata</i> , Lindl.	- 26	„ <i>physodes</i> , Reichb. f.	- 91
„ <i>flaccida</i> , Schlechter	- 20	„ <i>prasinata</i> , Lindl.	- 91
„ <i>Flanaganii</i> , Bolus	- 14	„ <i>reticulata</i> , Dur. and	
„ <i>hians</i> , Spreng	- 18	„ <i>Schinz</i> - - -	88
„ <i>laxiflora</i> , Schlechter	14, 15	„ <i>rufescens</i> , Dur. and	
„ <i>lissochiloides</i> , Lindl.	- 17	„ <i>Schinz</i> - - -	89
„ <i>micrantha</i> , Lindl.	- 8	<i>Mystacidium Aliciæ</i> , Bolus	- 6
„ <i>nutans</i> ?, Sonder	- 11	<i>Mystacidium cafferum</i> , Bolus	- 6
„ <i>odontoglossa</i> , Reichb. f.	- 25	„ <i>gracile</i> , Harv.	- 5
„ <i>Oliveriana</i> , Reichb. f.	25, 10	„ <i>Millari</i> , Bolus	- 5
„ <i>Pillansii</i> , Bolus	- 27	„ <i>Pegleræ</i> , Bolus	- 6
„ <i>platypetala</i> , Lindl.	- 17	„ <i>pusillum</i> , Harv.	- 6
„ <i>plicata</i> , Bolus	- 25	<i>Ophrys bivalvata</i> , Linn. f.	- 66
„ <i>Reichenbachiana</i> , Bolus		„ <i>patens</i> , Linn. f.	- 69
„ <i>speciosa</i> , Bolus	25, 19	<i>Orchis bicornis</i> , Linn.	- 47, 49
„ <i>streptopetala</i> , Lindl.	- 12	„ <i>cornuta</i> , Linn.	- 81
„ <i>tuberculata</i> , Bolus	- 22	„ <i>draconis</i> , Linn. f.	- 74
„ <i>Zeyheri</i> , Hook f.	- 24	„ <i>filicornis</i> , Linn. f.	- 68
<i>Habenaria arenaria</i> , Lindl.	- 42	„ <i>flexuosa</i> , Linn.	- 92
„ <i>Boltoni</i> , Harv.	- 45	„ <i>foliosa</i> , Swartz	- 46
„ <i>Bonatea</i> , Reichb. f.	- 44	„ <i>lutea</i> , Buxbaum	47, 49
„ var. <i>Boltoni</i> ,		„ <i>secunda</i> , Thunb.	- 37
„ <i>Bolus</i> - - -	45	„ <i>speciosa</i> , Linn. f.	- 44
„ <i>clavata</i> , Reichb. f.	- 43	„ <i>tenella</i> , Linn. f.	- 72
„ <i>foliosa</i> , Reichb. f.	- 46	<i>Penthea filicornis</i> , Lindl.	- 68
„ <i>micrantha</i> , Reichb. f.	- 42	„ <i>melaleuca</i> , Lindl.	- 66
„ <i>polyphylla</i> , Kränzl.	- 46	„ <i>patens</i> , Lindl.	- 69
„ <i>robusta</i> , N. E. Brown	- 44	„ <i>reflexa</i> , Lindl.	- 68
<i>Hallackia fimbriata</i> , Harv.	- 97	„ <i>triloba</i> , Sond.	- 87
<i>Herschelia Charpentieriana</i> , Kränz	77	<i>Polystachya capensis</i> , Sonder	- 32
„ <i>lugens</i> , Kränz	- 76	„ <i>Lindleyana</i> , Harv.	- 30
<i>Holothrix Burchellii</i> , Reichb. f.	- 39	„ <i>Ottoniana</i> , Reichb. f.	32
„ <i>condensata</i> , Sonder	- 36	„ <i>pubescens</i> , Reichb. f.	30
„ <i>Culveri</i> , Bolus	- 40	„ <i>Sandersonii</i> , Harv.	- 31
„ <i>Lindleyana</i> , Reichb. f.	35	„ <i>similis</i> , Reichb. f.	- 33
„ <i>multisecta</i> , Bolus	- 38	<i>Pterygodium deflexum</i> , Bolus	- 100
„ <i>Nyassæ</i> , Rolfe	- 38	„ <i>leucanthum</i> , Bolus	- 99
„ <i>orthoceras</i> , Reichb. f.	- 34	<i>Satyrium aculeatum</i> , Linn. f.	- 25
„ <i>pleistodactyla</i> , Kränzl.	38	„ <i>acuminatum</i> , Lindl.	- 59
„ <i>rupicola</i> , Schlechter	- 40	„ <i>Atherstonei</i> , Reichb. f.	- 61
„ <i>secunda</i> , Reichb. f.	- 37	„ <i>bicorne</i> , Thunb.	- 49
„ <i>Scopularia</i> , Reichb. f.	- 38	„ <i>bifidum</i> , Thunb.	- 96
<i>Huttonæa fimbriata</i> , Reichb. f.	- 97	„ <i>candidum</i> , Lindl.	- 60
<i>Limodorum giganteum</i> , Thunb.	- 13	„ <i>capense</i> , Linn.	- 25
„ <i>hians</i> , Thunb.	- 18	„ <i>carneum</i> , R. Br.	54, 55
<i>Lissochilus æqualis</i> , Lindl.	- 21	„ <i>cassideum</i> , Lindl.	- 51

# INDEX.

	TAB. NO.		TAB. NO.
<i>Satyrium chrysostachyum</i> , <i>Hersch.</i>	47	<i>Satyrium princeps</i> , <i>Bolus</i>	- 57
„ <i>cornutum</i> , <i>Thunb.</i>	- 81	„ <i>retusum</i> , <i>Lindl.</i>	- 53
„ <i>coriifolium</i> , <i>Swartz</i>	- 47	„ <i>rufescens</i> , <i>Thunb.</i>	- 89
„ <i>cucullatum</i> , <i>Lindl.</i>	- 47	„ <i>Schinzii</i> , <i>Dur. &amp; Kränzl.</i>	61
„ <i>cucullatum</i> , <i>Swartz</i>	- 49	„ <i>secundum</i> , <i>Thunb.</i>	- 85
„ <i>cylindricum</i> , <i>Thunb.</i>	- 73	„ <i>shirensense</i> , <i>Rolfe</i>	- 51
„ <i>densiflorum</i> , <i>Lindl.</i>	- 51	„ <i>tenellum</i> , <i>Thunb.</i>	- 72
„ <i>Draconis</i> , <i>Thunb.</i>	- 74	„ <i>trinerve</i> , <i>Lindl.</i>	- 61
„ <i>erectum</i> , <i>Swartz</i>	- 56	„ <i>triphyllum</i> , <i>Kränzl.</i>	- 61
„ <i>erectum</i> , <i>Lindl.</i>	- 47	„ <i>utriculatum</i> , <i>Sond.</i>	- 60
„ <i>criostomum</i> , <i>Thunb.</i>	- 51	„ <i>Woodii</i> , <i>Schlechter</i>	- 48
„ <i>flexuosum</i> , <i>Thunb.</i>	- 92	„ <i>Zombense</i> , <i>Rolfe</i>	- 61
„ <i>foliosum</i> , <i>Swartz</i>	- 50	<i>Schizodium bifidum</i> , <i>Reichb. f.</i>	- 96
„ <i>giganteum</i> , <i>Linn. f.</i>	- 13	„ <i>flexuosum</i> , <i>Lindl.</i>	- 92
„ <i>Hallackii</i> , <i>Bolus</i>	- 50	„ <i>inflexum</i> , <i>Lindl.</i>	- 93
„ <i>leucocomos</i> , <i>Reichb. f.</i>	- 61	„ <i>longipetalum</i> , <i>Lindl.</i>	- 96
„ <i>longibracteatum</i> , <i>Rolfe</i>	- 61	„ <i>obtusatum</i> , <i>Lindl.</i>	- 96
„ <i>lupulinum</i> , <i>Lindl.</i>	- 50	„ <i>rigidum</i> , <i>Lindl.</i>	94, 95, 96
„ <i>Mechowianum</i> , <i>Kränzl.</i>	61	<i>Scopularia Burchellii</i> , <i>Lindl.</i>	- 39
„ <i>membranaceum</i> , <i>Swartz</i>	57, 58	„ <i>secunda</i> , <i>Lindl.</i>	- 38
„ „ <i>N. E. Brown</i>	57	<i>Serapias aculeata</i> <i>Thunb.</i>	- 25
„ <i>microrhynchum</i> , <i>Schlechter</i>	62	„ <i>melaleuca</i> <i>Thunb.</i>	- 66
„ <i>monopetalum</i> , <i>Kränzl.</i>	- 61	„ <i>patens</i> <i>Thunb.</i>	- 69
„ <i>occultum</i> , <i>Rolfe</i>	- 61	„ <i>pedicellata</i> <i>Thunb.</i>	- 25
„ <i>odorum</i> , <i>Sond.</i>	- 52	<i>Stenoglottis fimbriata</i> , <i>Lindl.</i>	- 41
„ <i>parviflorum</i> , <i>Swartz</i>	- 51	<i>Tryphia major</i> , <i>Sond.</i>	- 37
„ <i>patens</i> , <i>Swartz</i>	- 68	„ <i>orthoceras</i> <i>Harv.</i>	- 34
		„ <i>secunda</i> , <i>Lindl.</i>	- 35





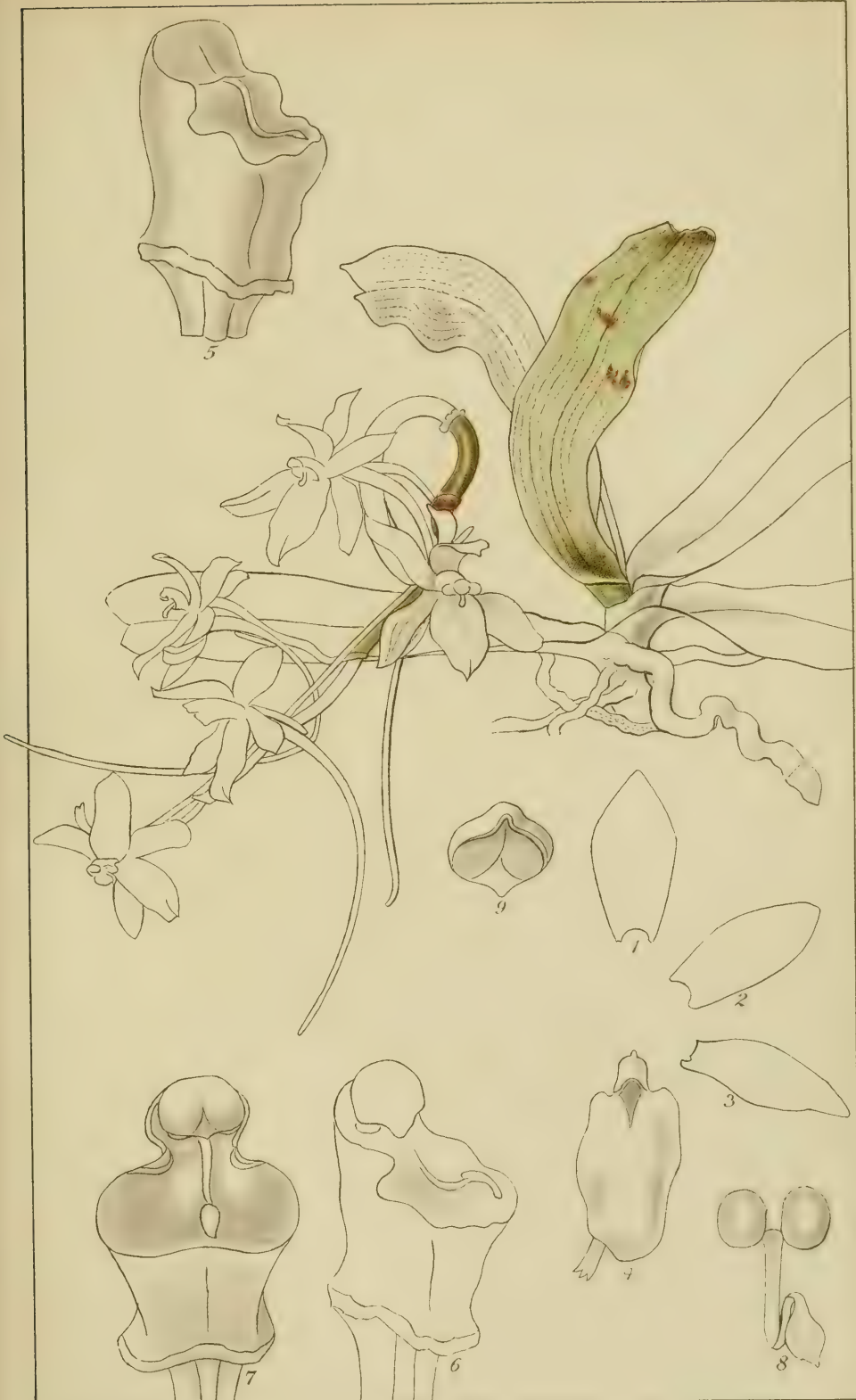


H. Bolus, del. ex vivo 30.10.1884.

Miles, Lith. London. W.

*LISTROSTACHYS ARCUATA, REICHENBACH FIL.*



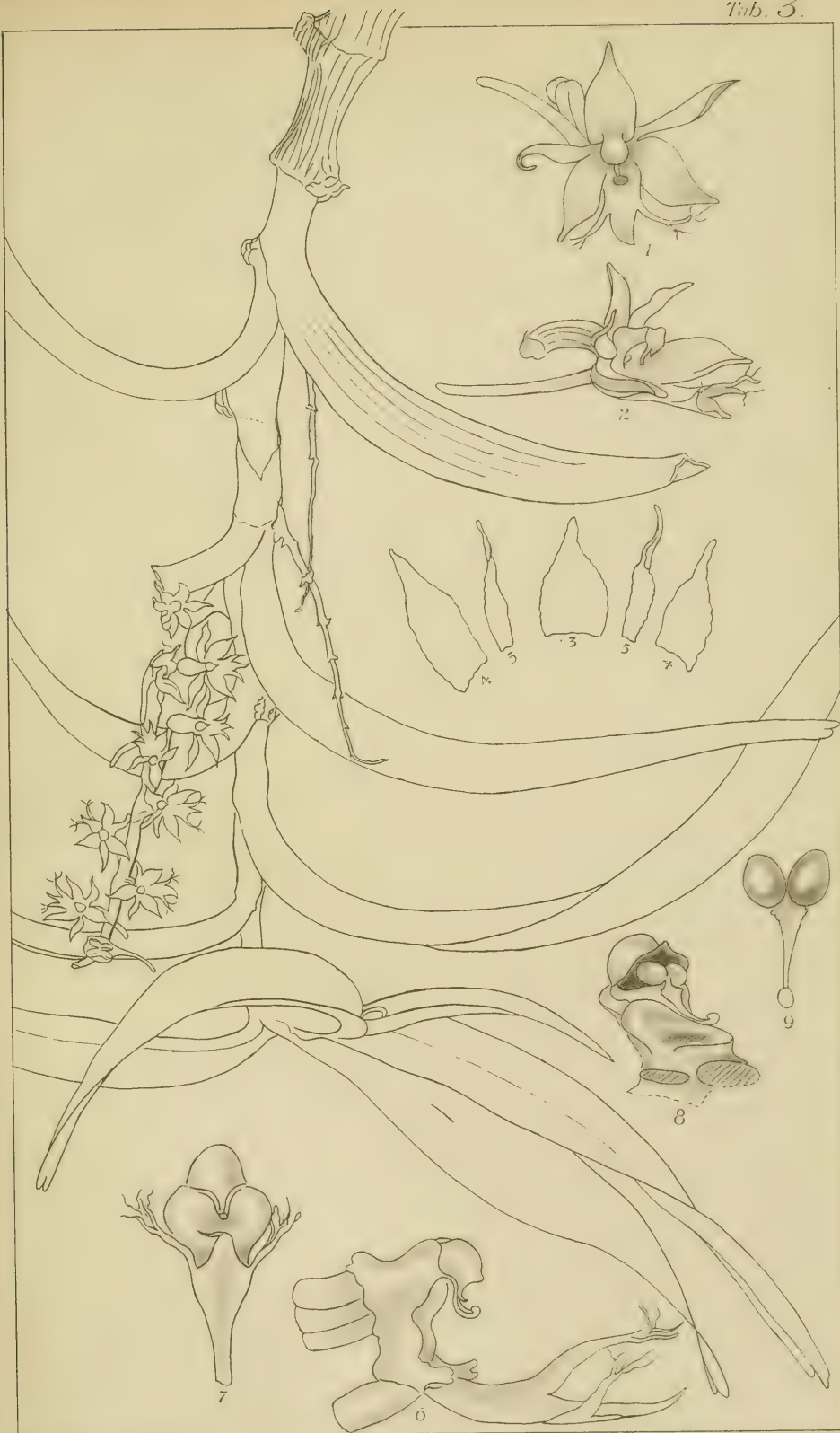


H. Bolus, del. 25.3.84.

Miles, Lith. London, W.

ANGRÆCUM SAUNDERSIÆ, BOLUS.





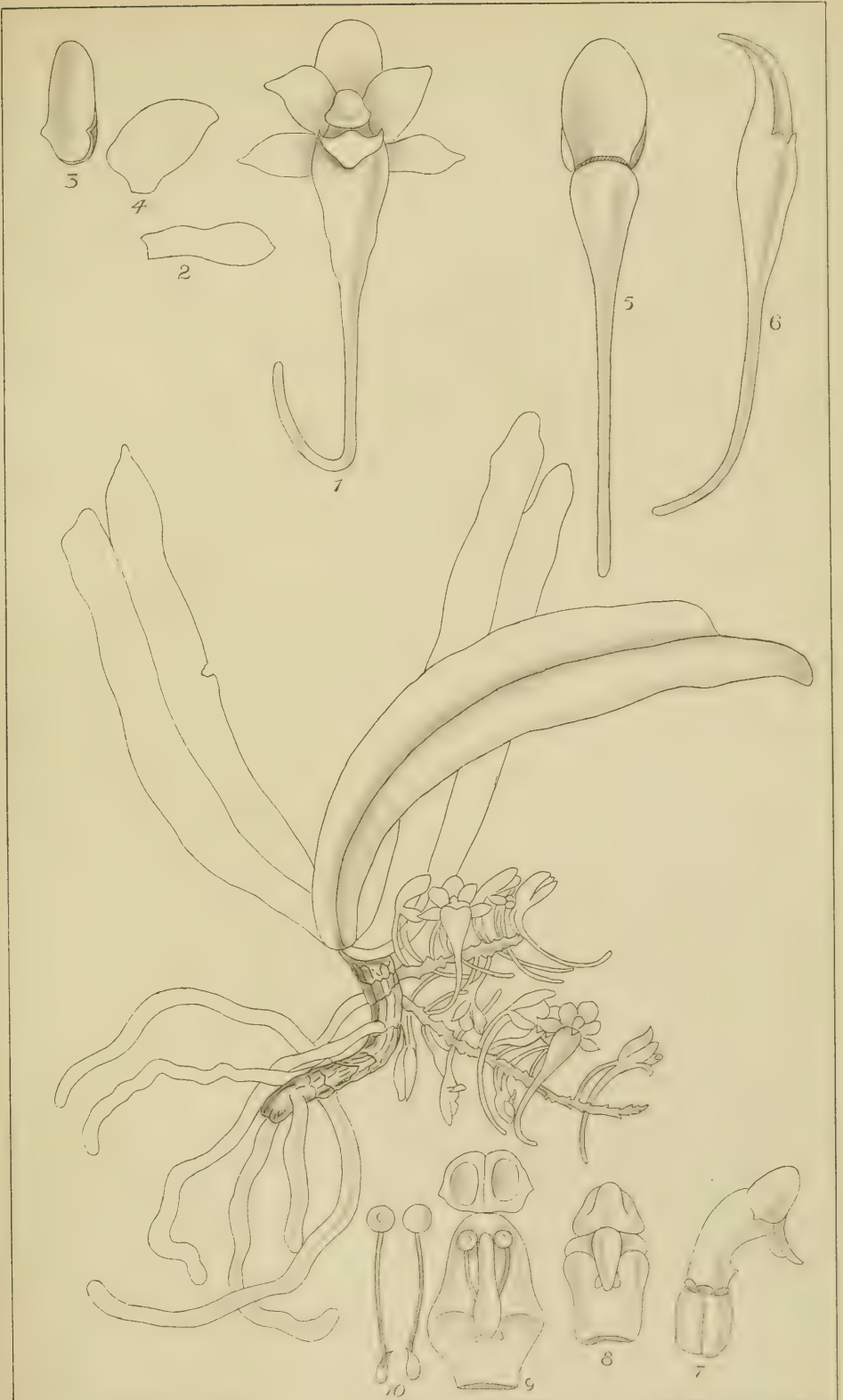
ANGRAECUM BICAUDATUM, LINDLEY.









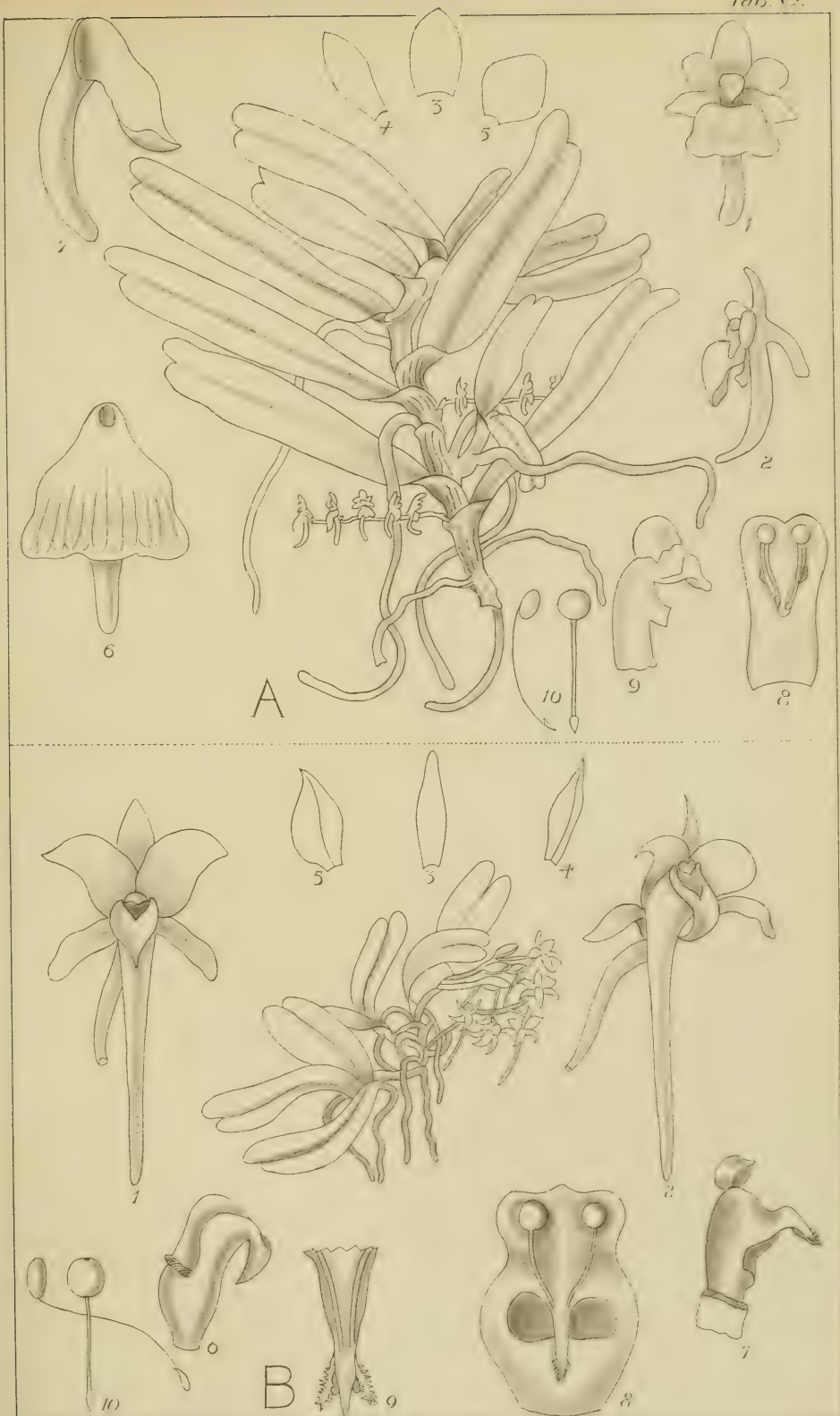


H. Bolus det. ex v. vol. 17. 1. 1902.

Printed by Linn. London W.

MYSTACIDIUM MILLARI. BOLUS.





A, *MYSTACIDIUM PEGLERÆ*, BOLUS.  
 B, *MYSTACIDIUM ALICIAE*, BOLUS.











H. Bolus, del. ad vivam.

Miles, Lith. London, W

*ACROLOPHIA MICRANTHA*, SCHLECHTER AND BOLUS





Bot. Beechey, Bot. Beechey, 1830

Miles Lib. London W

*EULOPHIA DREGEANA*, LINDLEY.







H. Bolus del. 1893

Miles, Lith. London. W

*EULOPHIA OLIVERIANA* (REICHB. F.) BOLUS





H. Bolus, del. ad vivam. 24.1.92.

Miles, Lith. London, W

EULOPHIA NUTANS ? SONDER





H. Bolus del ad vivam, 13, XI. 1890

Miles, Lith. London, W.

**EULOPHIA STREPTOPETALA**, LINDLEY







H. Bolus del. ad vivum 3.1.1886.

Miles, Lith. London, W.

*EULOPHIA SPECIOSA* BOLUS.





H. Bolus, del. ad vivum 21.1.93.

Miles, Lith. London, W.

*EULOPHIA FLANAGANII BOLUS.*





H. Bolus del II, '93

Mr. Lee Jackson W

EULOPHIA LAXIFLORA. SCHLECHTER







H.Bolus del. ad vivam 15. II. 93.

Miles, Lith. London, W.

EULOPHIA ÆMULA, SCHLECHTER





H. Bolus del ad vivam 28 XI 95

Miles. Lith. London, W

*EULOPHIA PLATYPETALA, LINDLEY.*





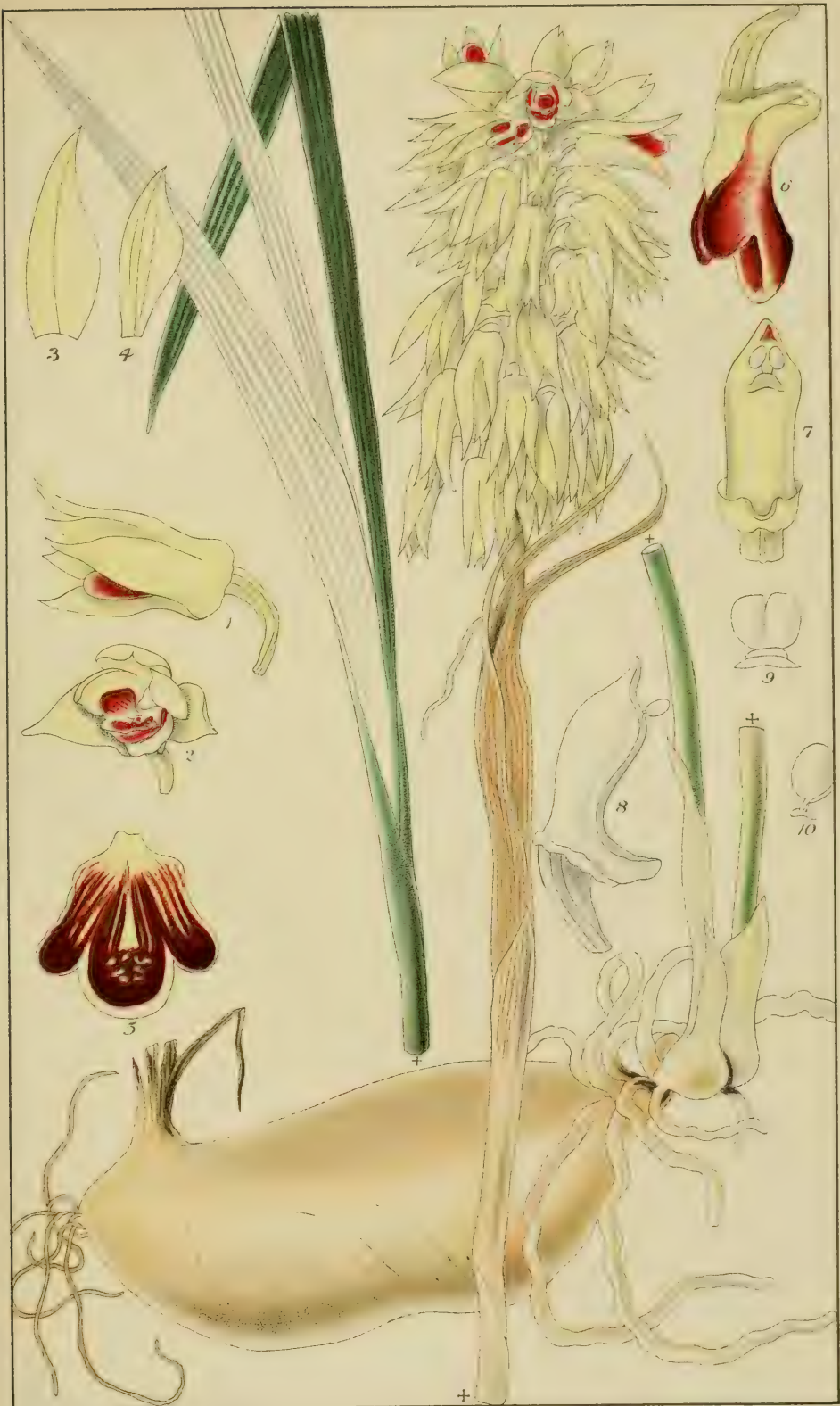
H. Bolus, del. 5.X. 1901

Miles, Lith. London W

EULOPHIA HIAN, SPRENGEL.





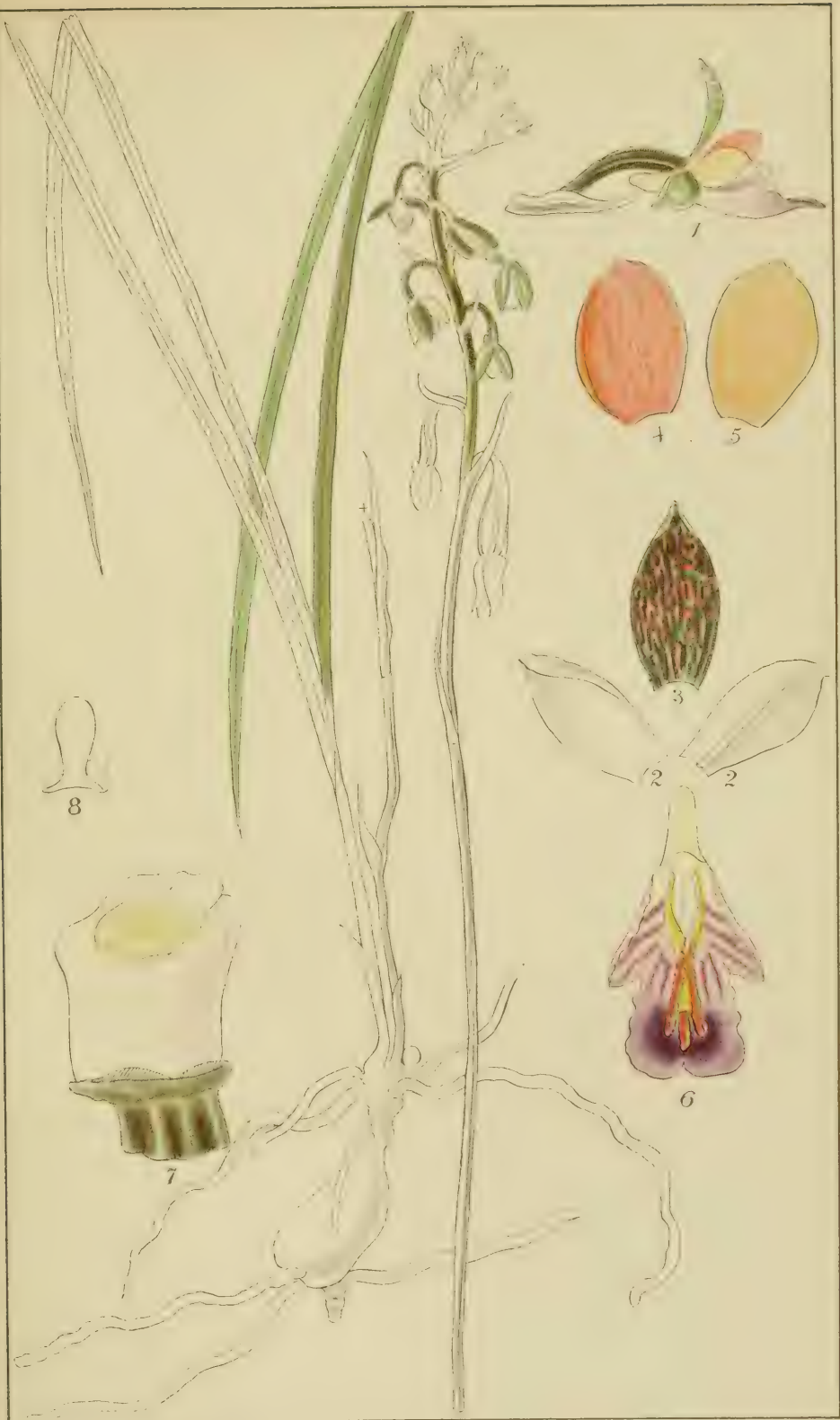


H. Bolus del ad vivam. 14 X 1.92.

Milas, Lith. London, W.

*EULOPHIA REICHENBACHIANA* BOLUS.





H. Bolus del. ad vivam 22.1.93.

Miles, Lith. London, W.

*EULOPHIA FLACCIDA*, SCHLECHTER











H. Bolus del ex vivo 24.X.'89.

Miles, Lith. London, W

EULOPHIA

TUBERCULATA, Bolus.

(*Lissochilus platypetalus*, Lindley)





in Bolus del. ad vivam. 9 II 1886

Miles Lith. London W

*EULOPHIA BUCHANANI*, BOLUS.





H Bolus. del. ad vivam. Jan. 30 1896.

Miles, Lith. London, W.

*EULOPHIA ZEYHERI*, *HOOKE*R FIL.







H. Bolus; del. ad vivam

Miles, Lith. London, W.

EULOPHIA CAPENSIS, BOLUS.





H. Bolus del. ad vivam. 3. 2. '93.

Miles, Lith. London, W.

*EULOPHIA ENSATA*, LINDLEY.











J. Sanderson del. ex vivo

Miles, Lith. London, W.

CYNORCHIS COMPACTA. REICHB. FIL.





H. Bolus, del. ex vivo 4. 7. 1886.

Miles, Lith. London. W.

ANSELLIA AFRICANA, LINDL. VAR.





H. Bolus del ex vivo. 11.12.89.

Miles, Lith. London. W.

*POLYSTACHYA PUBESCENS*, REICHB. F.







H. Bolus, del ad vivam. 14.XII.'95.

Miles, Lith. London, W.

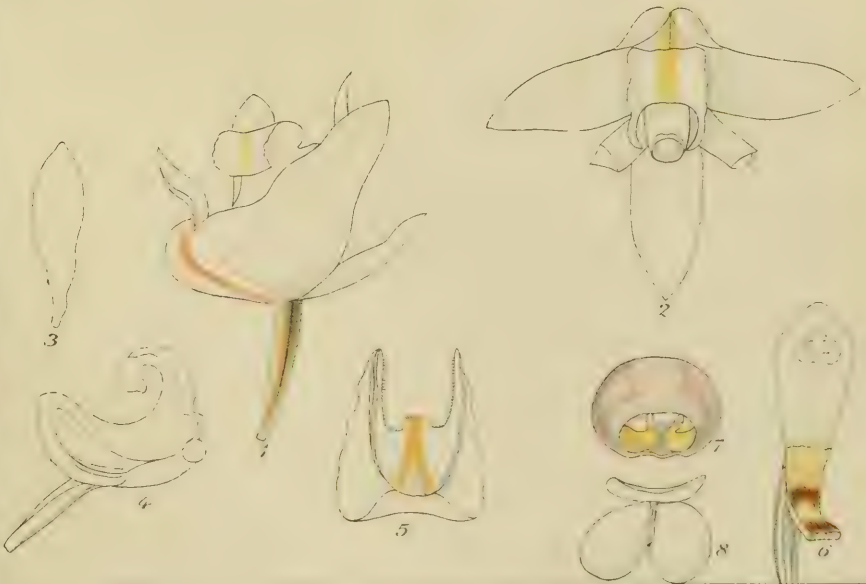
*POLYSTACHYA SANDERSONII*, HARVEY.



I



II



H. Bolus, del. 14. 10. 1884, ex vivo.

Miles, Lith. London. W.

POLYSTACHYA OTTONIANA REICH.B.F.





H Bolus, del ad vivam 9.II. 1896

Miles, Lith. London. W

POLYSTACHYA SIMILIS, REICHENBACH FIL.







H. Bolus del. ad vivam 24.III.1892.

Miles. Lith. London, W.

*HOLOTHRIX ORTHOCERAS, REICHENBACH FIL.*



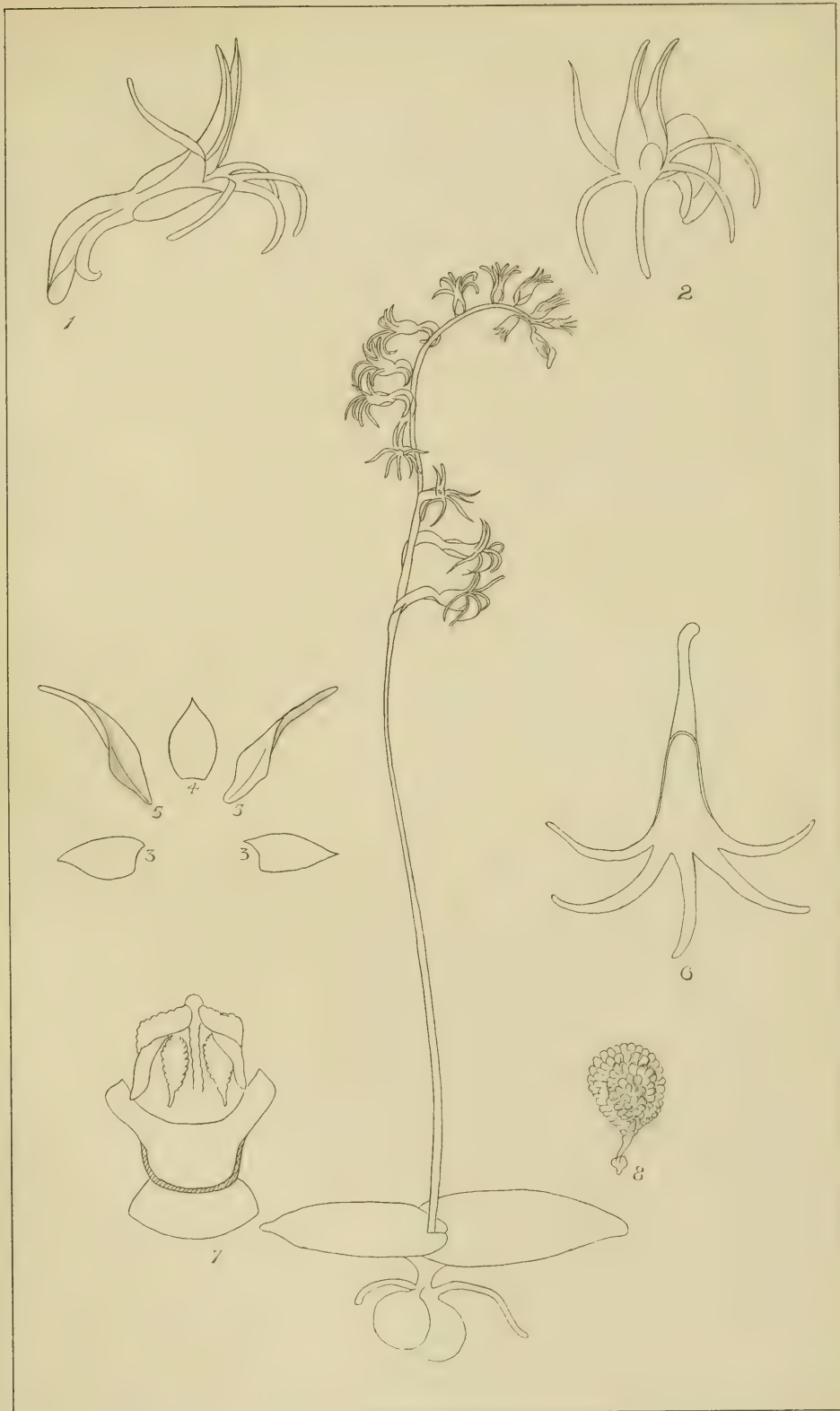












H. Bolus del. ad vivam, 2. IX. 95

Miles, Lith. London. W

HOLOTHRIX SECUNDA, REICHENBACH FIL.





H. S. fil. ad vivam 3.1. 1894.

Miles, Lith. London, W.

HOLOTHRIX SCOPULARIA REICHENBACH FIL.





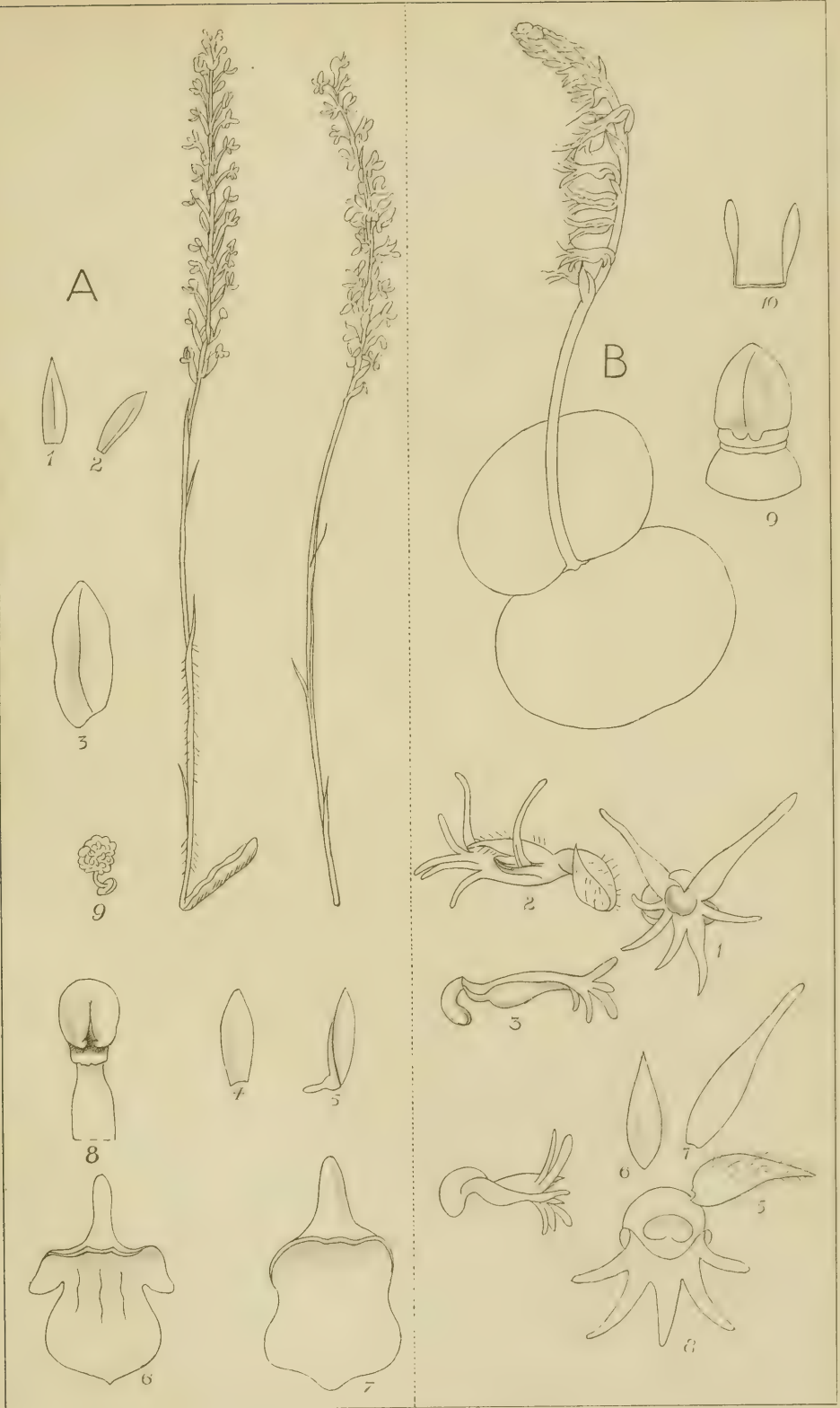
H. Bolus. del. advivam 29. IX. 92.

Miles, Lith. London, W.

**HOLOTHRIX BURCHELLII, REICHENBACH.FIL.**







H. Bolus del. IV. 1. 1894.

Miles, Lith. London, W.

*B. HOLOTHRIX RUPICOLA* SCHLECHTER.





H Bolus del. ad vivam. I.IV. 1902

Miles, Lith. London, W.

STENOGLOTTIS FIMBRIATA, LINDLEY.





H. Bolus, del. ad vivam. I. V. '95.

Miles, Lith. London, W.

HABENARIA ARENARIA. LINDLEY.







H Bolus del. ad vivam, 3.XII. 1893.

Miles, Lith. London, W.

HABENARIA CLAVATA, REICHB. FIL.





H. Bolus del ex vivo 27.x.1889.

Miles Lith. London, W

HABENARIA BONATEA, REICHB. FIL.





H. Bolus del ad vivam 24. 2. 92.

+

Miles, Lith. London. W.

HABENARIA BONATEA REICHB. F. VAR. BOLTONI







H Bolus del ad vivam 2.1'86.

Miles, Lith. London, W.

HABENARIA POLYPHYLLA, KRAENZLIN.





H. Bolus, del. ad vivam, 12 XI. MDCCCXCI

Miles, Lith. London, W.

SATYRIUM CORIIFOLIUM, SWARTZ.





H Bolus, del ex vivo. 26.10.1902.

Miles. Lith. London. W

SATYRIUM WOODII, SCHLECHTER.







H. Bolus, del. ad vivam 10 X 82.

Miles, Lith. London, W.

*SATYRIUM BICORNE*, THUNBERG.



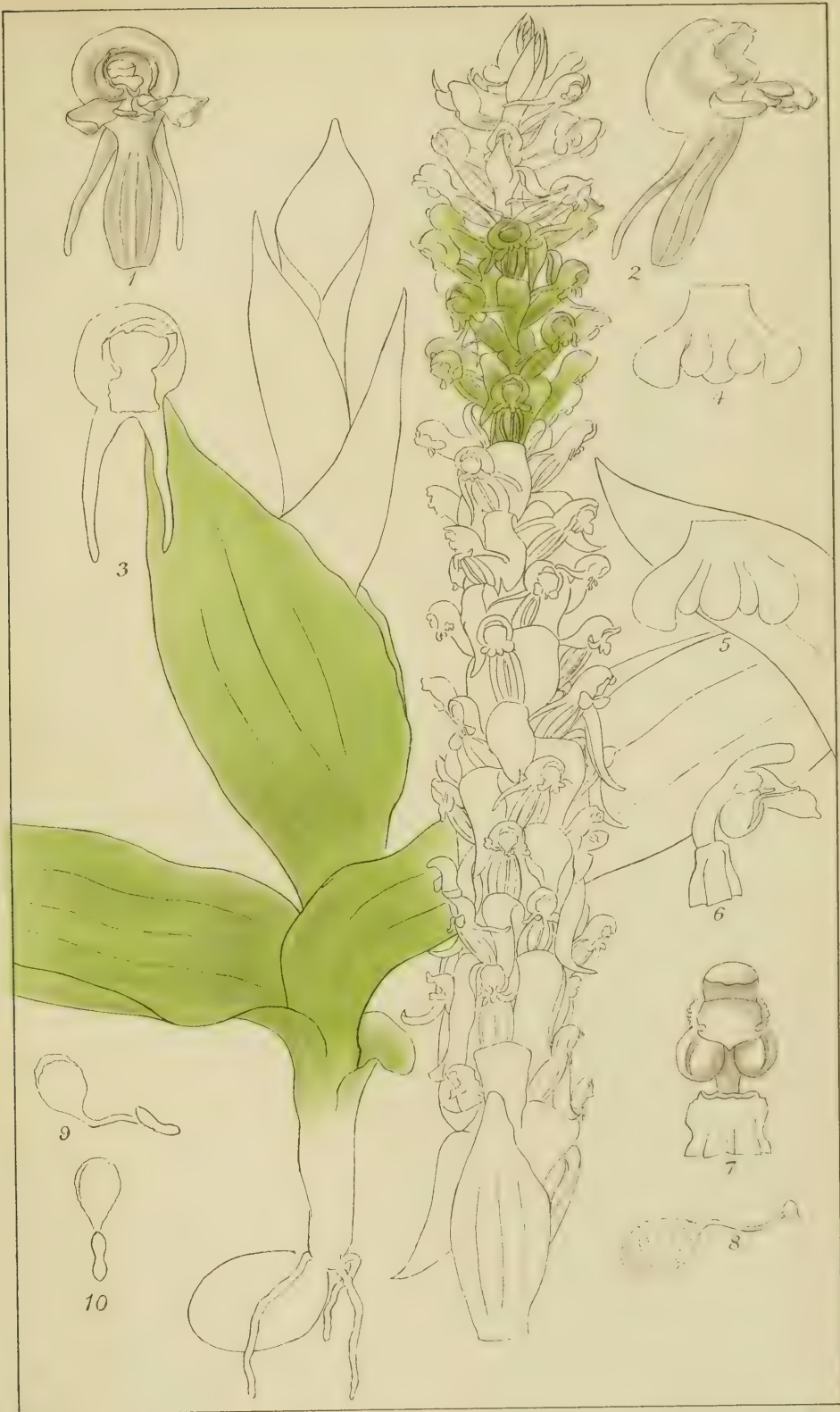


H Bolus, del. ad vivam 8. II. 1897.

Miles, Lith. London. W.

SATYRIUM FOLIOSUM, SWARTZ.





H. Bolus, del. ex vivo. '8 X. 1885.

Miles, Lith. London, W.

SATYRIUM PARVIFLORUM, SWARTZ.





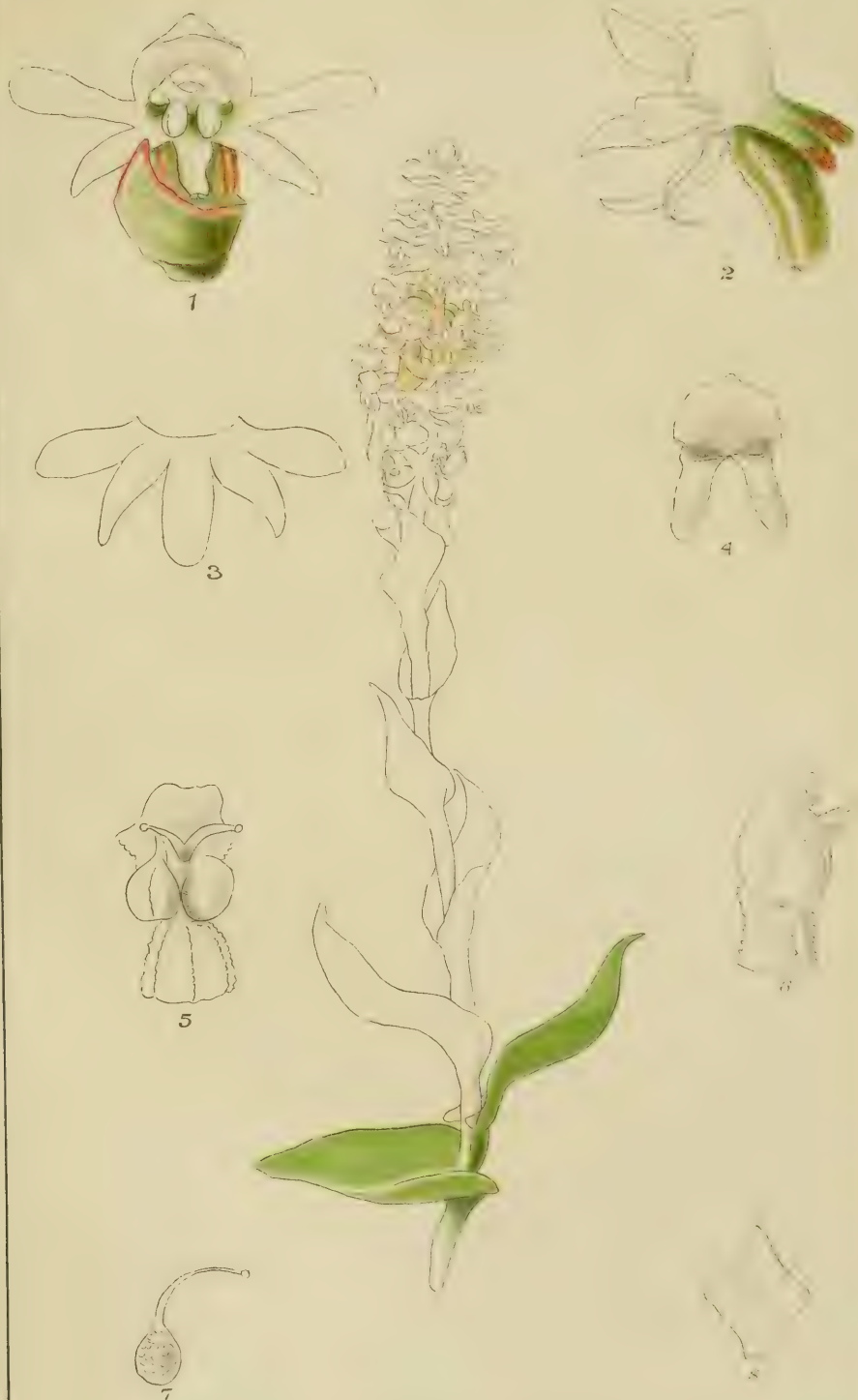


H. Bolus del. 21.8.62.

Miles, Lith. London, W.

SATYRIUM ODORUM SONDER.





H Bokus. del. et vivam. 11 X. '94.

Miles, Lith. London, W

**SATYRIUM RETUSUM, LINDLEY.**











H. Brown, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

SATYRIUM CARNEUM, R. BROWN.

H. BROWN, LONDON W.





H. Bolus, del. 7. 10. '84.

Miles, Lith. London, W

SATYRIUM ERECTUM, SWARTZ.





H. Bolus. del. ex vivo. 30. IX. '85.

Miles Lith. London W

SATYRIUM PRINCEPS, *BOLUS.*





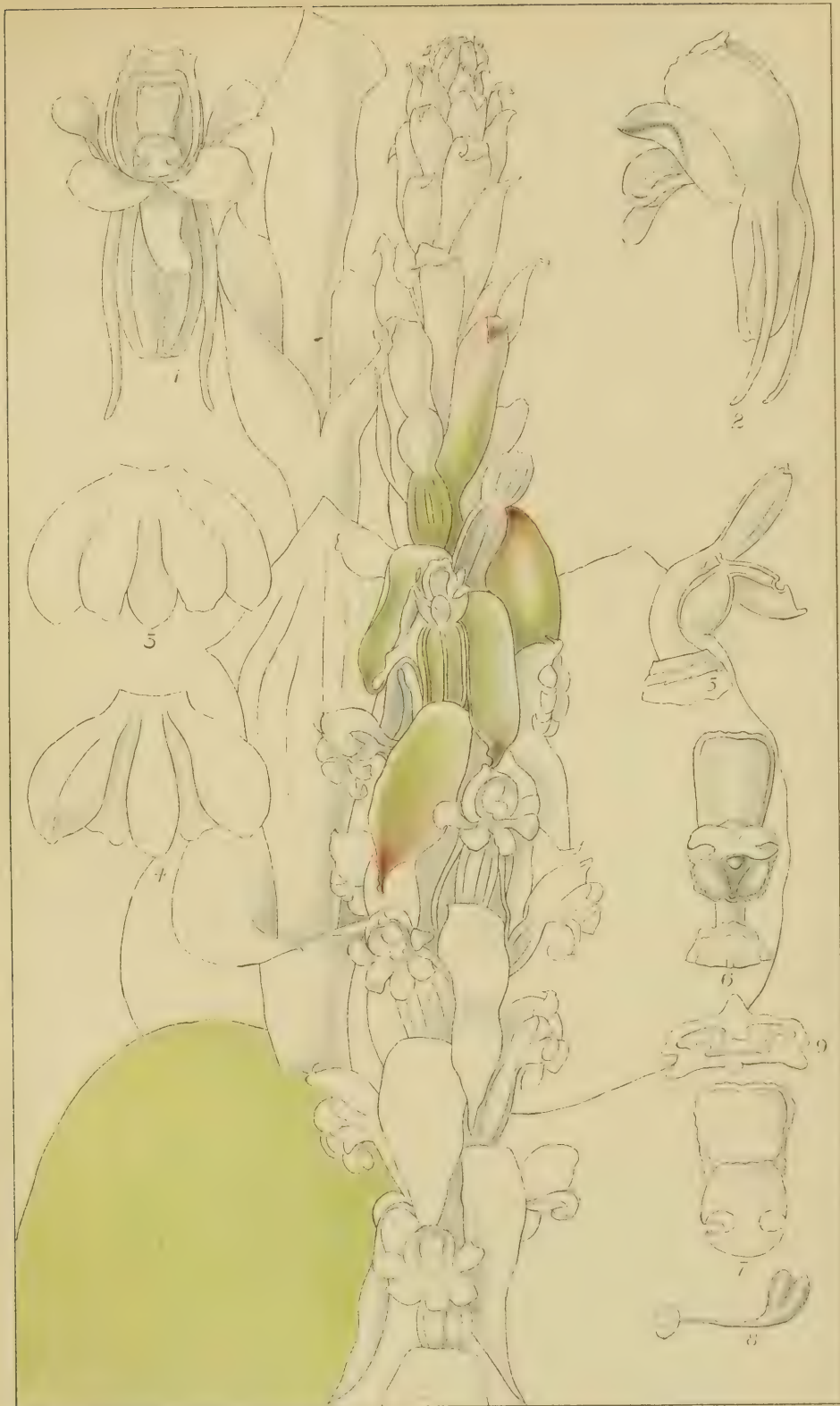
H. Bolus, del. ex vivo. 30. IX. 95.

Miles, Lith. London. W.

SATYRIUM MEMBRANACEUM, SWARTZ.







H. Bolus del. ex viva. 9x105.

Miles Lith. London. W.

SATYRIUM ACUMINATUM, LINDLEY.





H. Bolus del. ad vivam 10X 1891.

Miles, Lith. London, W.

SATYRIUM CANDIDUM, LINDLEY.





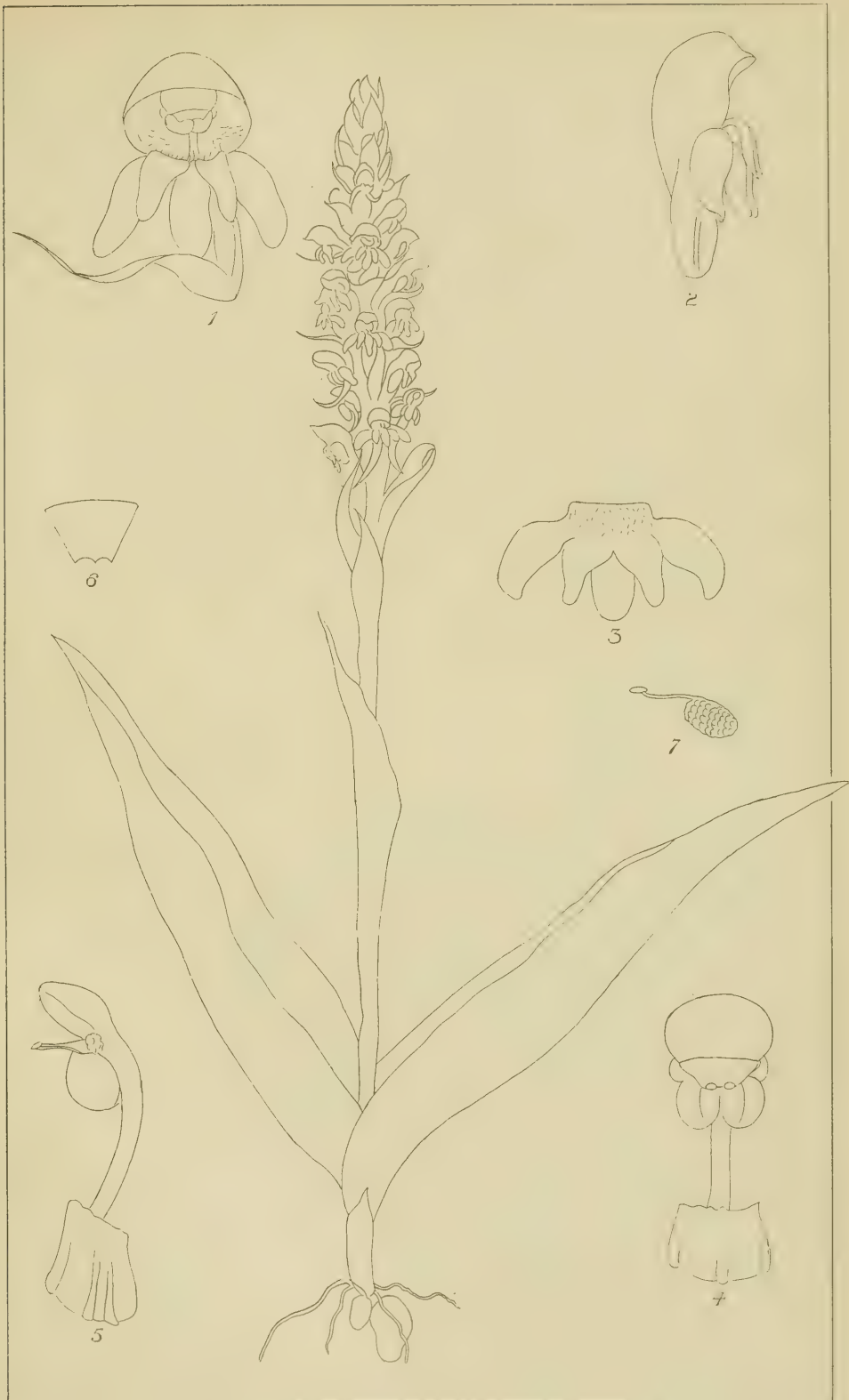
H. Bolus del. ad vivam 5.1.96.

Miles. Lith. London W

SATYRIUM TRINERVE, LINDLEY.







H. Bolus del. ad vivum, 26. I. 1896.

Miles. Lith. London, W.

SATYRIUM MICRORHYNCHUM, SCHLECHTER.





E. F. C. et al. Bot. del. et color.

M. J. L. et al. Bot. del. et color.

DISA UNIFLORA BERG





H. Bolus del ad vivam 23.X'93.

Miles, Lith. London, W

*DISA ROSEA*, LINDLEY





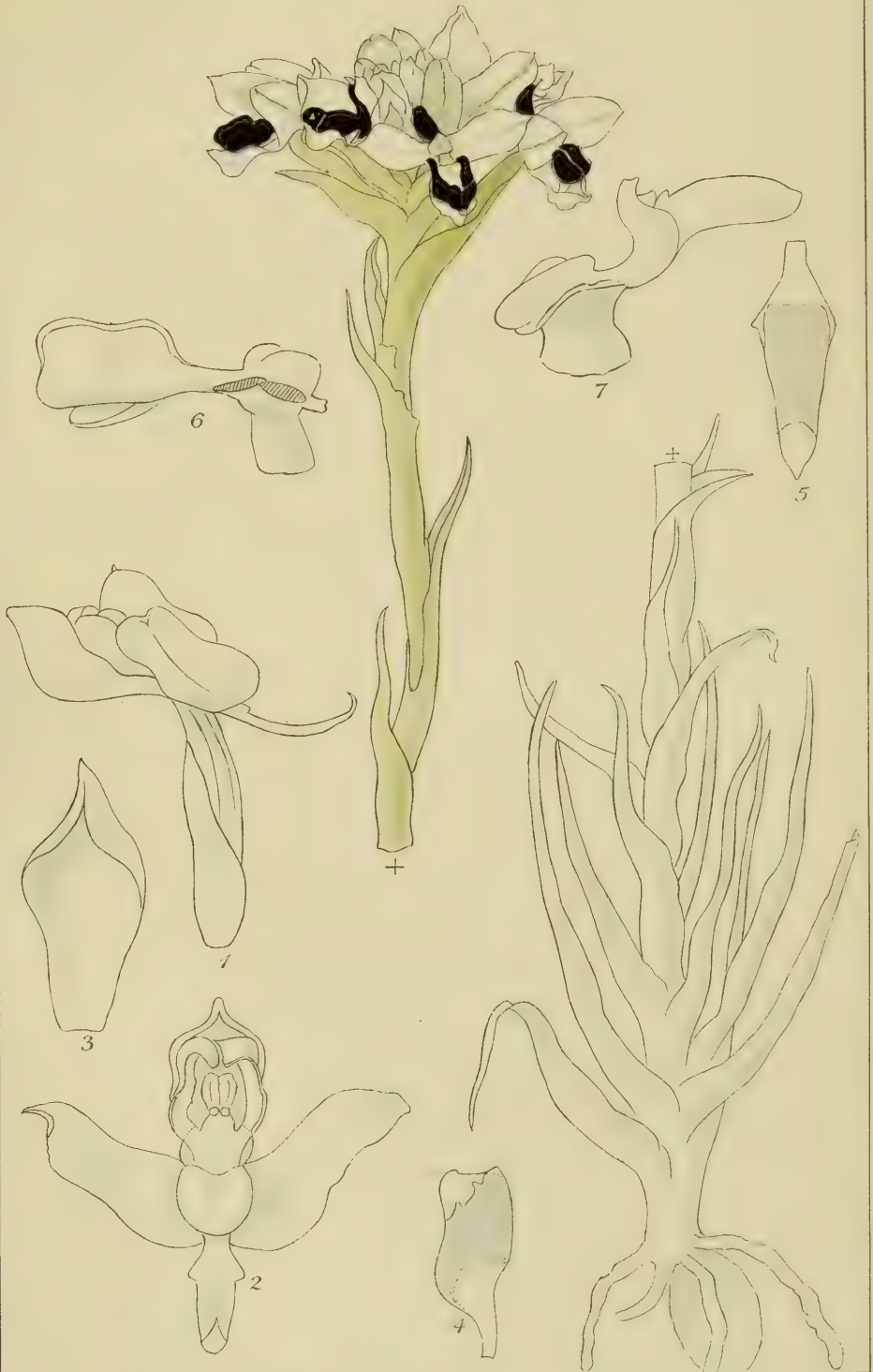
H. Bolus del. ad vivam. Dec. 1893

Miles. Lith. London, W.

*DISA COOPERI*, REICHENBACH FIL.







H. Bolus, del. ad vivam 3 XII '93.

Miles, Lith. London, W

*DISA BIVALVATA*, DUR. & SCHINZ.





H. Bolus del. ad vivam, 4. I. 1897.

Miles, Lith. London, W.

*DISA MARLOTHII* BOLUS.





H. Bolus del. ad vivam 12.12.1880.

Miles, Lith. London. W.

*DISA FILICORNIS*, (LINN. F.) THUNB.







H. Bolus del., ad vivam, 26.XI.93

Miles, Lith. London, W.

*DISA PATENS* (LINN. F.) THUNB.





H. Bolus del, 14. XI. 1904

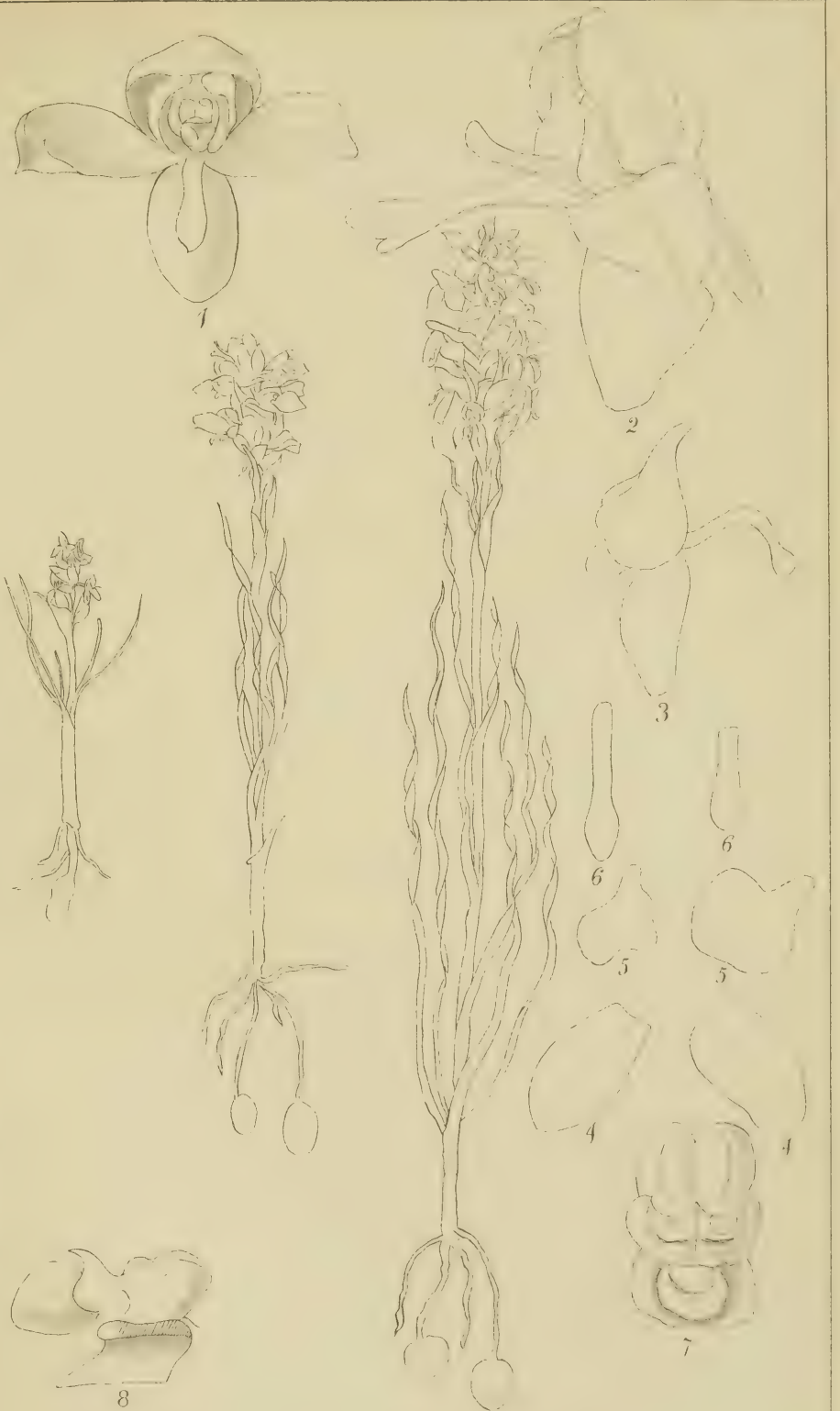
Miles, Lith. London, W.

*DISA TELIOGONIS. REICHB FIL.*









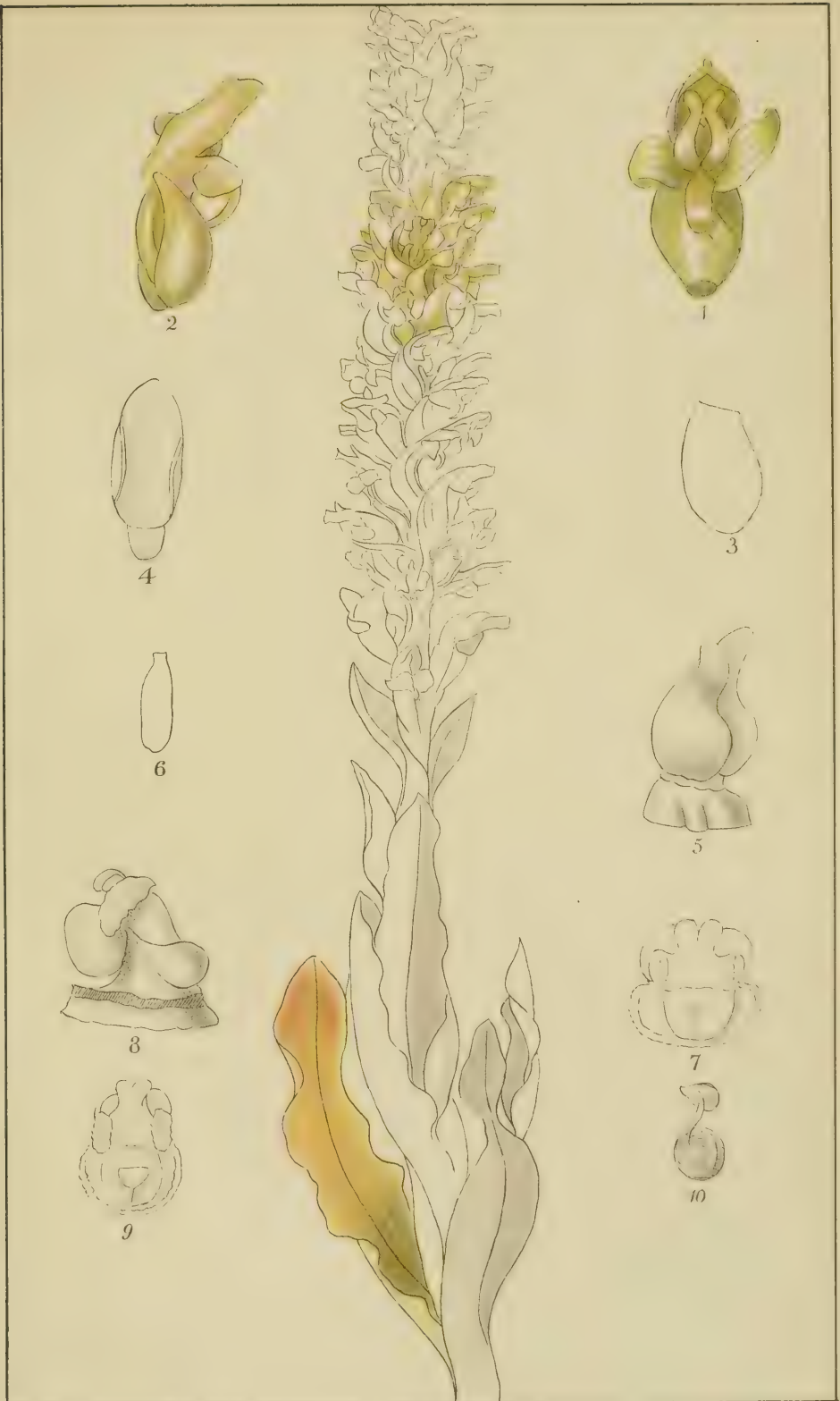
H Bolus del., ad vivam, 13.IX.92.

Miles, Lith. London W

## DISA TENELLA, SWARTZ.







DISA CYLINDRICA, SWARTZ.





H. Bolus del. 8.XI. '82

Miles Lith. London. W

DISA DRACONIS. SWARTZ.











H. Bolus del ad vivam 4 XI. 1883.

Miles, Lith. London, W.

*DISA LUGENS* BOLUS.





H. Bolus del. 29.XII.'84. ex vivo

Miles. Lith. London, W

*DISA (Herschelia) CHARPENTIERIANA, REICHB. F.*





H. Bolus, del. ex vivo, 17.1.1896.

Miles, Lith. London, W

*DISA OREOPHILA, BOLUS.*





H. Bolus del. ex vivo. 19. 2. 1890.

Miles. Lith. London. W.

*DISA GLADIOLIFLORA*, BURCHELL.







H. Bolus del. ad vivam 21.XII.'94.

Miles. Lith. London, W.

DISA TYSONII, BOLUS.





H Polus del. ad. v. m. 79X 93

Miles, Lith. London, W

DISA CORNUTA, SWARTZ









DISA ÆMULA, *BOLUS*







H Bolus del ad. vivam. 12. III. '94

Miles, Lith. London, W.

*DISA POLYGONOIDES. LINDLEY.*





4 Bolus del. ad vivam. 25.XI.93

Miles, Lith London.W

DISA RACEMOSA, LINNAEUS FIL.





H. Bolus 6.XI.'82.

Miles, Lith. London. W

*DISA VENOSA*, SWARTZ.







H. Bolus del. ad vivam 15. 12. 1936.

Miles, Lith. London, W.

*DISA OLIGANTHA*. REICHE FIL.



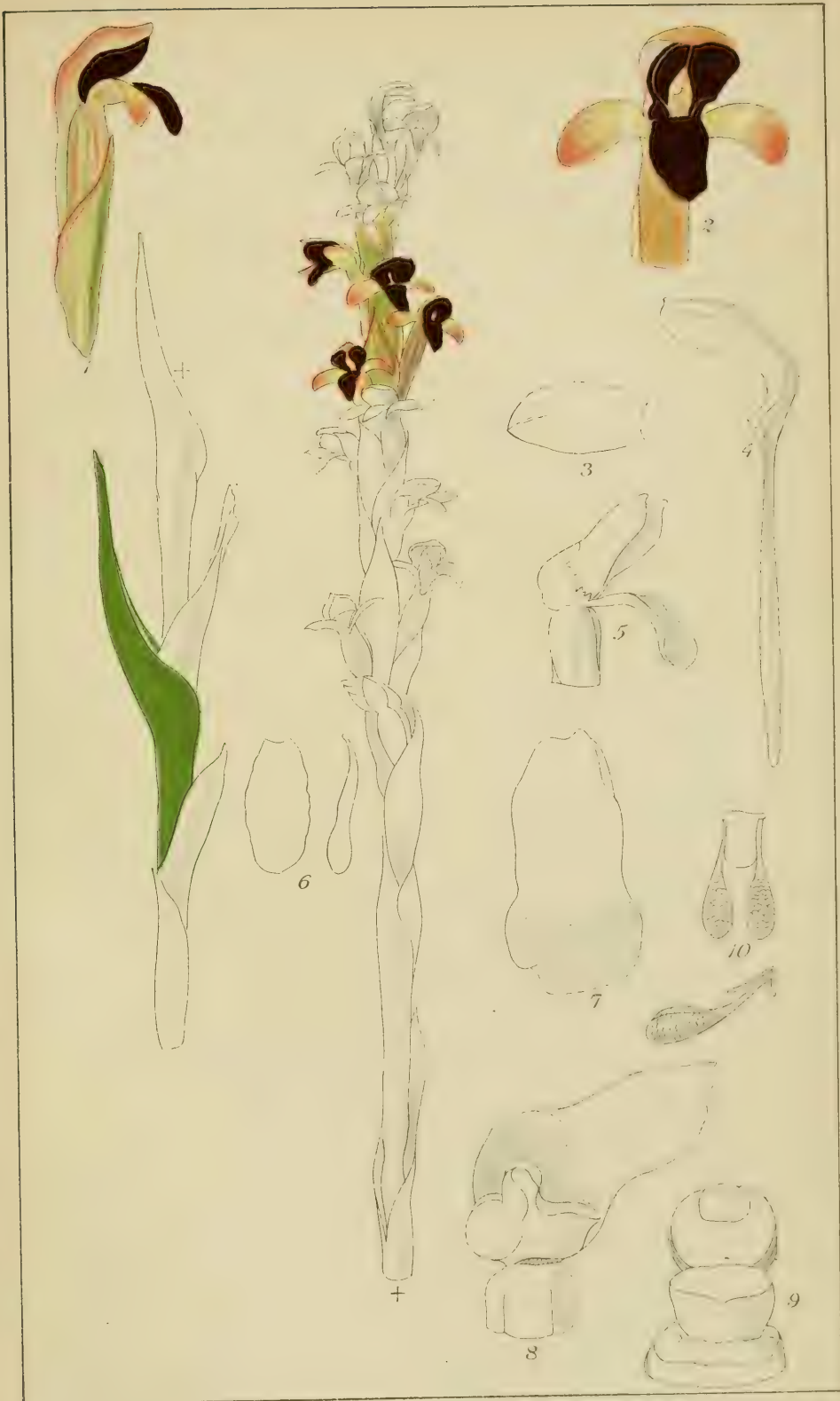


H. Bolus. del. ad. vivam. 8X. 34.

Miles, Lith. London, W.

DISA RETICULATA, BOLUS. § MONADENIA.





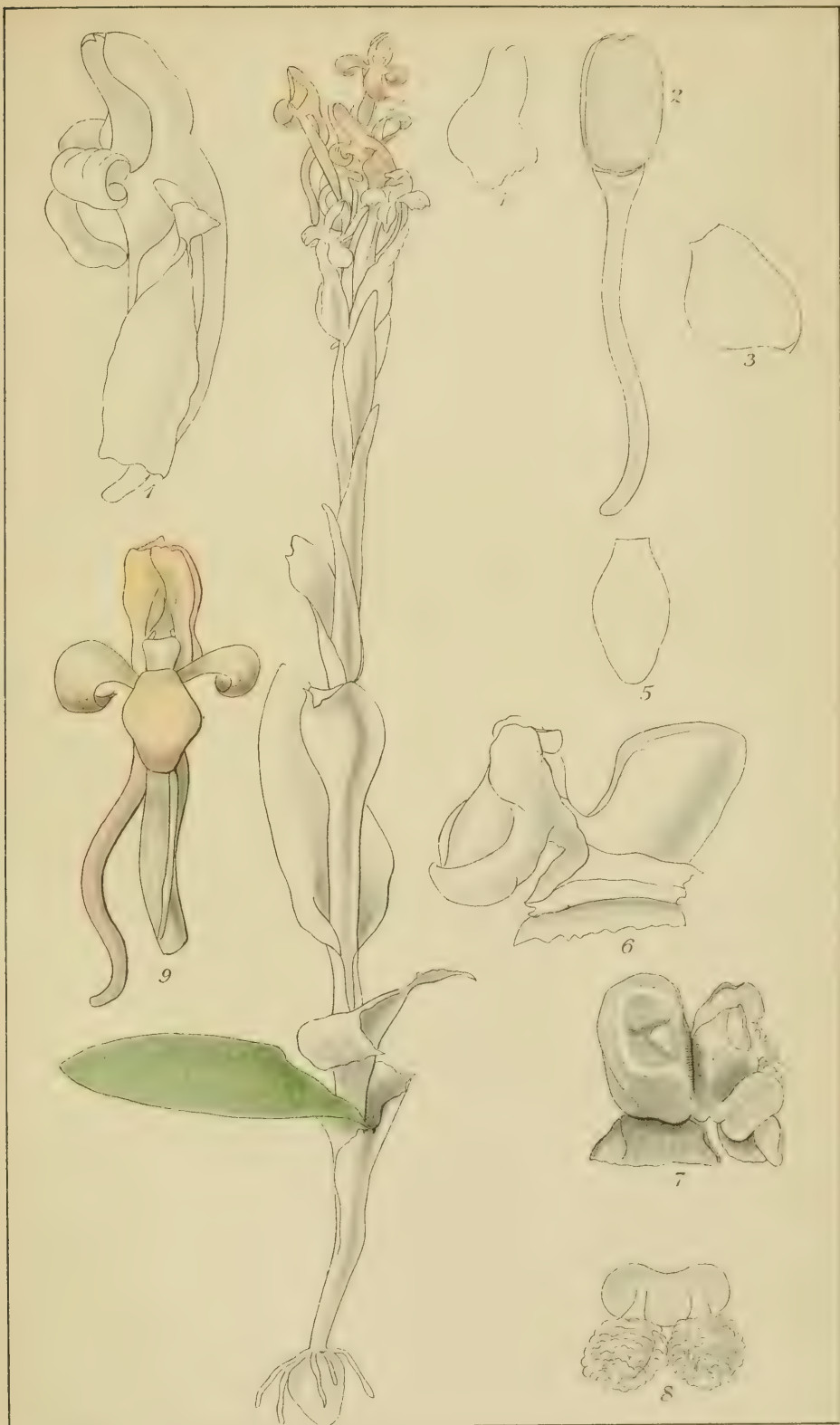
H. Bolus del. ad vivam. 30. VII. '92.

Miles, Lith. London, W.

*DISA RUFESCENS* SWARTZ. § *MONADENIA*.







H. Bolus del. 6.1.84.

Miles, Lith. London, W

*DISA (MONADENIA) BOLUSIANA, SCHLECHTER.*





H Bolus del. ex vivo 13X89%

Miles. Lith. London W

DISA, MONADENIA, CERNUA, SWARTZ.





H. Bolus del ad vivam. 17. 10. 1880

Miles, Lith. London. W

SCHIZODIUM FLEXUOSUM, LINDLEY.





H. Bolus del. ad vivam 19.10.1887

Miles Lith. London. W

SCHIZODIUM INFLEXUM, LINDLEY.







H. Bosc. del. ad vivam 7.VIII.92.

Miles, Lith. Lon. 92.

SCHIZODIUM RIGIDUM LINDLEY



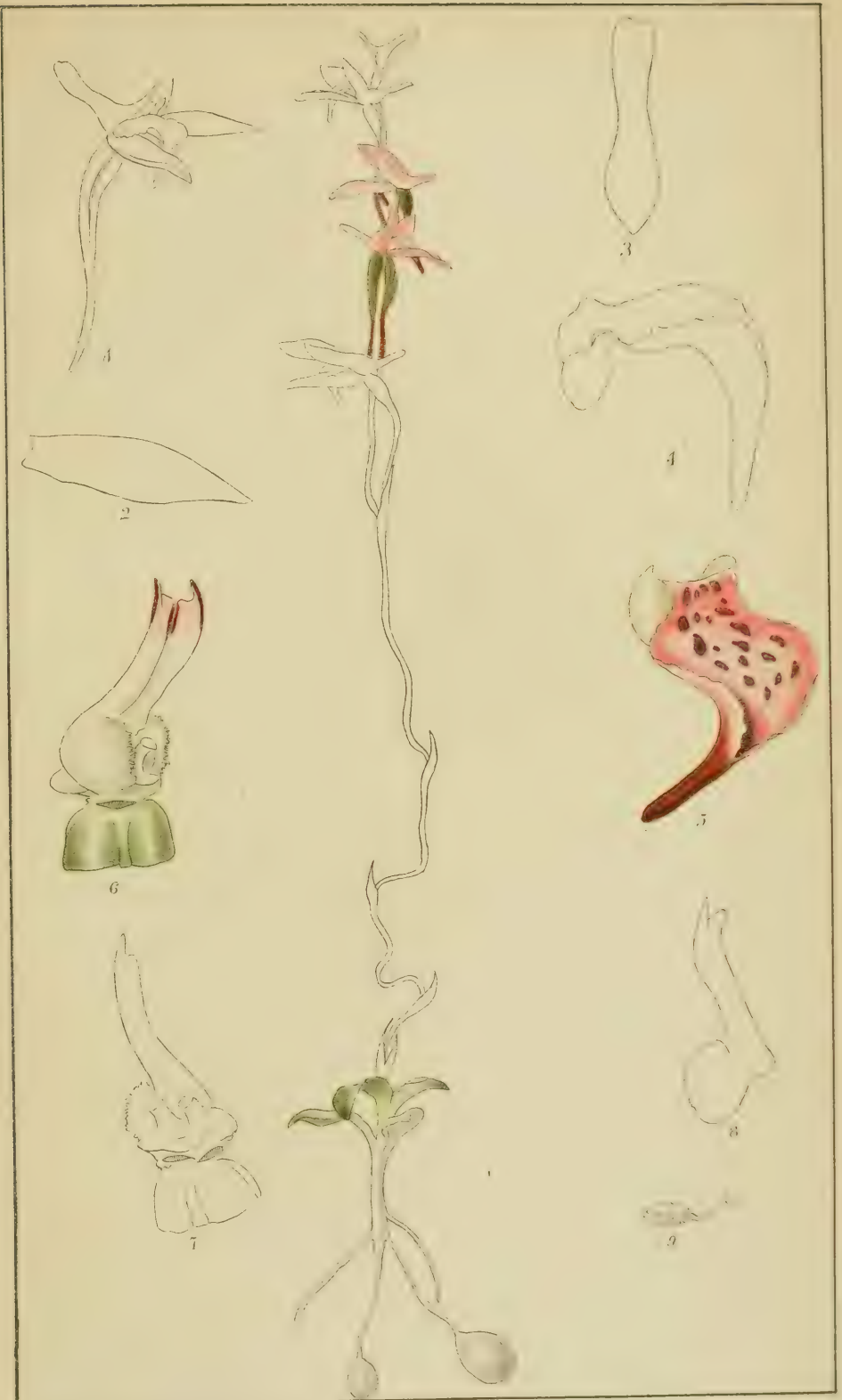


H. Bolus del. ex vivo 13. IX. '85.

Miles, Lith. London. W.

**SCHIZODIUM RIGIDUM**, LINDLEY.





H. Bolus del. ex vivo. 2 IX. '85.

Miles, Lith. London, W.

SCHIZODIUM BIFIDUM, REICHENBACH FIL.







H. Bolus del. ad vivam 26.1.1896

Miles, Lith. London. W.

HUTTONAEA FIMBRIATA, REICHENBACH FIL.





M. Smith del. ex Sicco.

Miles, Lith. London. W

CORYMBIS WELWITSCHII REICHENBACH FIL





H. Bolus del, ad vivam 16.1.96.

Miles, Lith, London W.

*PTERYGODIUM LEUCANTHUM*, BOLUS.





H. Bolus del. ad vivam 5.X.1897

Miles, Lith. London W

**PTERYGODIUM DEFLEXUM, BOLUS.**









QL 66 .A1 B64 v.2 gen  
Bolus, Harry/Icones orchidearum austro-a



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